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THE COSEASONAL TREATMENT OF HAY FEVER*

JOHN L. GUERRANT, M.D.,
and
OSCAR SWINEFORD, JR., M.D.,
University of Virginia,
Charlottesville.

Every year a number of hay fever patients are surprised to learn that something specific can be done to give them prompt relief from their symptoms. The following is an example:

On the 13th of September, 1944, a 37 year old lawyer appeared. He had had hay fever in August and September for five years. His symptoms were present only during the ragweed season. He knew of nothing except pollen that would produce them. His general health was excellent. Examination showed nothing of importance except the signs of severe hay fever. Skin tests showed many positive reactions to foods, dusts, and other inhalants and very strong reactions to ragweed, cocklebur, goldenrod and corn pollens. He was started on daily 0.1 cc. subcutaneous injections of 1:50,000 ragweed, cocklebur, and goldenrod pollen extracts. He had a local reaction to the second dose. The third dose was 0.1 cc. of 1:1,000,000 dilution of the same extracts. It was followed by prompt relief. He remained comfortable throughout the remainder of the season while taking 0.1 cc. doses of dilute pollen extracts every three or four days. Toward the end of the season it was decided to start perennial treatment so the concentration was slowly increased until he received 0.1 cc. of a 1:5,000 dilution about October 1st. No drugs were given for symptomatic relief.

*From the Allergy Clinic, Department of Internal Medicine, University of Virginia Medical School, Charlottesville.

Read at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

This is called coseasonal treatment. It was described by Vaughan first in 1923[1] and again in more detail in 1932.[2] He pointed out that the doses should be small, that they should not be increased in size, that the size of the first dose should vary indirectly with the strength of the skin reaction, and that once relief had been obtained the interval between doses should be increased as much as freedom from symptoms would permit.

Several modifications of Vaughan's original plan have been suggested. These include the administration of the extract intradermally so as to produce a local reaction in the form of a large wheal;[3,4,5,6] elimination of contributing factors such as foods, dusts, fungi, or other inhalants;[7,8] and the inclusion of extracts of dusts and other inhalants in the treatment mixture.[9,10]

Coseasonal treatment is regularly used at the University of Virginia Allergy Clinic on all patients who first appear with active seasonal hay fever. Most of them are first given a comprehensive allergic study. A detailed allergy history is obtained. Emphasis is placed on the dates of onset and termination of seasonal symptoms; the presence of asthma and other allergic diseases; perennial symptoms, even if they are minor; aggravation of symptoms by foods, dusts, feathers, fly sprays, animal danders, and other inhalants; presence of sinus and bronchial infections; a family history of allergic disease; and environmental factors that might be important. General medical histories and physical examinations, as well as miniature films of the chest, are done rou-

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tinely. Special attention is given the nasal mucous membranes, nasal septum, and transillumination of the sinuses. Sinus x-rays are made when indicated.

Skin tests are done for the pollens prevalent at the time of the symptoms and for about 100 common foods, dusts, epidermals, fungi, and other inhalants. Preliminary scratch tests are routinely followed by intradermal tests with all extracts giving negative scratch reactions. All tests are done on every patient at one sitting. Conjunctival tests are done for the pollens suggested by the history when skin tests are negative.

An incomplete examination has to be done occasionally on patients who come in with severe symptoms demanding immediate attention. This includes at least a brief history, examination of the nose and sinuses, and skin tests for the suspected pollens. Some of these patients have to have a program based on the detailed study before their symptoms are relieved.

A treatment program is designed for each patient on the basis of the information obtained from the examination. The case presented is an example of a simple problem. Pollen seemed to be the sole source of his symptoms and treatment was limited to the use of pollen extract. If the evidence indicates that other factors such as foods, dusts, epidermals, fungi, polyps and sinus or bronchial infection contribute to the symptoms an effort is made to eliminate them.

Management is based on three forms of treatment. They are: (1) Injections of extracts of pollen and other inhalants; (2) Avoidance of foods and inhalants, and treatment of infection; (3) Use of drugs.

The proper use of pollen extract is the most important factor in the coseasonal treatment of hay fever. A mixture of pollen extracts is made up individually for each patient. All pollens producing skin or conjunctival reactions are included if they are known causes of hay fever and are prevalent at the time of the patient's symptoms. Skin reactions to pollens that are not in the air at the time of the patient's symptoms are ignored. Pollen calendars show which pollens are prevalent at any season. In doubtful cases the examination of slides exposed to the patient's environment may identify the offending pollen.

When the history points definitely to other inhalants and is supported by positive skin reactions, an extract of the appropriate inhalants may be included in the treatment mixture.

There are no fixed dosage rules. The extracts are given subcutaneously. The initial dose is usually 0.05 cc. or 0.1 cc. of a 1:50,000 dilution. If the skin reactions are exceptionally strong, the first dose is 0.1 cc. of the 1:250,000 or 1:500,000 dilution. If the skin reactions are very weak, the first dose may be 0.1 cc. of the 1:10,000 dilution. A good rule is to start with 0.1 cc. of that dilution which gives a weakly positive intradermal test. The extract is usually given daily and the dose is increased rapidly until the symptoms are relieved or until a local reaction is produced. If an appreciable local reaction follows the first injections or if symptoms seem to be aggravated by them, the dose is reduced by one-half or more daily until there is no local reaction or until the symptoms are relieved. If relief lasts less than 24 hours, the injections may be given twice daily. Once the patient becomes comfortable the dose is repeated every two or three days or as often as needed to control the recurrence of symptoms. If perennial treatment is to be used, the dose is gradually increased, reactions and exacerbations permitting, during the season.

When the history suggests that foods or inhalants other than pollen may cause perennial symptoms or aggravate the seasonal symptoms they should be eliminated from the diet and the environment for trial periods. Detailed written instructions for avoiding food and inhalants are given. Positive skin reactions to these extra-pollen factors do not require special consideration unless supported by the history or by failure to obtain prompt relief from pollen extract injections.

If sinus or bronchial infection is present it is treated actively. If polyps are found in the nose they are removed promptly.

Drugs are used to supplement specific pollen extract treatment of seasonal hay fever. They have no curative value. They may give almost complete relief to an occasional patient with mild symptoms and they usually lessen severe symptoms. They are frequently disappointing. The following drugs are often used: Ephedrine by mouth, alone or in combination with one of the barbiturates or xanthines. The capsules containing ⅜ gr. of ephedrine with ¾ gr. seconal, nembutal, or amytal are popular. Elixir of neosynephrin is often well tolerated by children. Ephedrine or neosynephrin are effective

as nose sprays. Subcutaneous injections of adrenalin give temporary relief. A number of other drugs such as propadrine, racephedrine, benzyl-ephedrine and the benzedrine inhaler are sometimes helpful when others are poorly tolerated. When asthma is present potassium iodide, ephedrine, caffeine, or aminophyllin alone or in combination are often helpful. Aminophyllin or glucophyllin may be given by suppository.

Benadryl and pyribenzamine have been available this year for the first time. Twenty-five to 50 mg. of either, three to six times daily, often give marked and prompt relief from hay fever. They relieve asthma less frequently. They cause troublesome drowsiness in many patients and nervousness or nausea in a few. In spite of wide publicity they are far from the answer to the problems of hay fever. They are apt to have little effect if the symptoms are severe.

Toward the end of the pollen season a form of treatment for the following year is chosen. A program leading to maximum relief with minimal annoyance to the patient is desirable. Perennial treatment is advised for those who have severe symptoms, especially if more than eight or ten injections are needed to obtain relief from coseasonal treatment. When prompt and satisfactory relief follows a few coseasonal injections the patient is advised to return the following year at the onset of his symptoms. The following is an example of a patient who has done especially well for several years on coseasonal treatment.

A 42 year old housewife was seen first in May, 1941. She had had hay fever in April and May for nine years. She was free of symptoms for the rest of the year. She became comfortable after three injections of grass and plantain extract. Since then she has obtained prompt relief each April or May from two or three injections of the same extract.

One hundred cases of hay fever treated by this coseasonal program were studied. The only criteria for selection were that the records have notes complete enough to indicate the degree of relief and that treatment had been given at least a week. In analyzing the cases emphasis was placed on the results of treatment, the incidence of several complications of seasonal hay fever, and the effects of these complications on the results.

The results are classified as satisfactory or unsatisfactory. Patients who showed clear-cut relief and were able to go about their ordinary activities with only occasional mild, nose or chest symptoms were considered satisfactory. All others were unsatisfactory. Many had complete relief. Most of those who became comfortable did so by the fifth day of treatment. Many were comfortable by the second day.

The table shows the results of coseasonal treatment of 100 cases together with the incidence and

RESULTS OF TREATMENT AND INFLUENCE OF VARIOUS ASSOCIATED CONDITIONS IN 100 CASES OF HAY FEVER TREATED COSEASONALLY

	Number	% with satisfactory results
Total Cases	100	87
*Uncomplicated Cases	28	96
Cases with:		
Asthma	37	83
Perennial Symptoms	45	82
Infection	34	82
*Skin reactions to allergens other than pollen	73	89
Nasal Obstruction	32	84

lack of effect of a number of associated conditions. Eighty-seven of the 100 patients experienced satisfactory relief. The degree of relief obtained in patients with asthma, perennial hay fever, sinus or pharyngeal infection, nasal obstruction, or skin reactions to things other than pollen equaled that of the entire group. There were twenty-eight patients without complication. In only one of these was the result unsatisfactory. The effects of strong and weak skin reactions; spring, summer, and fall symptoms; sex; years of symptoms; and age of patient were also studied. These are not included in the table because they did not seem to influence the results.

The good results obtained in the presence of sinus infection, nasal polyps, perennial symptoms, and sensitivity to factors other than pollens are assumed to be due to the recognition and treatment of these conditions.[7, 8, 9, 10] Proof of this assumption was not attempted.

The records of the thirteen cases in whom the results were unsatisfactory were studied carefully. The unsatisfactory results may have been due to: Untreated perennial symptoms in five; A period of symptoms that began before and extended beyond the pollen season in two; Severe local reactions followed by exacerbations of the symptoms in one; Discontinuance of injections after one week in spite

*For this tabulation, skin reactions to allergens other than pollen were not considred as complications.

of apparent improvement in one; Irregular injections in one; Return of symptoms after exposure to a large amount of dust in one who had already been relieved. In two the poor results could not be explained.

CONCLUSIONS

1. Coseasonal treatment relieved eighty-seven of 100 cases of seasonal hay fever satisfactorily.
2. An individual treatment program was designed for each patient after the appropriate studies had been completed.
3. Treatment consisted of:
   A. Frequent small doses of appropriate pollen extracts supplemented with other allergens when indicated.
   B. Elimination of all foods and inhalants suspected of causing symptoms.
   C. Use of drugs for symptomatic relief.
4. Good results may be obtained in spite of complications if they are recognized and treated.
5. Good results are usually apparent by the fifth day of treatment.
6. Perennial treatment is recommended for subsequent years unless coseasonal treatment gives prompt relief with a few injections.

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DISCUSSION

DR. J. WARRICK THOMAS, Richmond: It is a pleasure to have the opportunity of discussing this paper on the coseasonal pollen treatment of hay fever. I feel it is a very apt time, as the hay-fever season is just over and we still appreciate the fact that many of these individuals are quite miserable and that if we can help them with the coseasonal pollen treatment we are doing something that is worth while.

The type of treatment as employed at the University is similar to that employed elsewhere. The dilutions vary. We employ a more concentrated extract, but in most instances they start with a dilute extract of one to 50,000 and work up; and we start with dilutions of one to 10,000, one to 5,000, and on to 3,000 and work up. We strive for the same purpose—to attain that amount which controls the patient's symptoms.

I took a number of observations of our patients during the current season. Incidentally, the symptoms do vary in the same individual from one season to another. There seems to be a variation in the toxicity of the pollen, and one season you can use a different schedule of dosage from another season to control the patient's symptoms. We find in some individuals the symptoms are adequately controlled with one to two injections. In other instances a larger number of injections is required. We studied a group in which the number of injections varied from one to eleven, to control the coseasonal symptoms, and the period of relief varied from twenty-four hours to five days.

We have found that the coseasonal treatment and any and all treatment at times are not adequate to control certain individuals. I had the experience this summer of encountering a patient who has been under treatment since 1922, having been under treatment by competent men at the University of Chicago and elsewhere. He has had varied treatment and has followed his diet, with no result. So we decided to try some of the wonder drug, as the current magazines prescribe, although we do not usually follow their recommendations. We gave this man pyribenzamine, and it was the first time in twenty-two years that he had been able to tolerate the current pollen season with a fair amount of relief. While I am speaking of pyribenzamine and benadryl, I want to utter a word of caution. There have been some cases in which asthmatics were made definitely worse. One pediatrician discussed with me one child who had a dose of ten milligrams, which was the correct dosage for that child, and he slept for twelve hours straight.

One other point I think should be emphasized. That is, in addition to giving the patient coseasonal pollen treatment we should carefully watch his diet. There are individuals who receive coseasonal pollen treatment with absolutely no relief; and, after controlling their diet and eliminating those foods that may be only seasonal offenders, we are able to control their symptoms. I feel

we should also state that there are patients who may have been treated preseasonally or perennially, and they still have hay fever during the season. In that case it is necessary to bring in our coseasonal treatment in addition to the other treatments, and we find that coseasonal treatment in these instances gives very happy results in selected cases.

We encounter pregnant women sometimes who have to have their hay fever taken care of, too. One of these individuals, under the coseasonal treatment, got along satisfactorily. Another individual had quite severe symptoms. This patient was having considerable hay fever and was quite uncomfortable. She had a couple of shots, with no results. She was about at term. With the permission of her obstetrician her symptoms were nicely controlled by pyribenzamine.

When we treat allergic individuals we encounter those people who are markedly sensitive and have severe constitutional reactions. When you vary your coseasonal treatments or other treatments as much as 0.05 c.c. dosage of a solution which they tolerate, and they go into severe reaction, we must be prepared to control the present emergency. Therefore we like to give all the pollen injections in the arm or in the leg sufficiently low to permit the use of a tourniquet proximal to the injection; and we must always have available adrenalin, so that we can be prepared for such an emergency. At times patients may go into profound shock, and we should have caffein and other stimulants available.

It is a pleasure to have had Dr. Guerrant discuss this subject.

DR. GUERRANT, closing the discussion: I would like to thank Dr. Thomas for his remarks.

We believe the smaller doses of extract are important because many of our patients are sent home with a supply of extract to be administered by their local doctors. Even though the smaller doses may delay response to treatment, the added safety makes them worthwhile.

Orthopaedic Training Program at Duke University School of Medicine.

On May 24 and 25 meetings were held at Charlotte Memorial Hospital, Charlotte, and the North Carolina Orthopaedic Hospital, Gastonia, at which trainees in the Orthopaedic Training Program at Duke University School of Medicine and other hospitals read medical papers to members of the orthopaedic specialty and the personnel of the training program.

This training program in orthopaedic surgery has been established with the cooperation of the Warm Springs Foundation, Warm Springs, Ga., the North Carolina Orthopaedic Hospital, the Shriner's Hospital for Crippled Children, Greenville, S. C., Charlotte Memorial Hospital, and the orthopaedic division of the department of surgery at Duke. The training is on a competitive basis and all appointments are for one year. Fellowships are provided by the National Foundation for Infantile Paralysis. Engaged in the training are six first year fellows, four second year fellows, four third year fellows, four fourth year resident fellows and one fifth year resident fellow.

The personnel of the services participating in this program include: Dr. Robert L. Bennett, director of physical medicine, Warm Springs Foundation, Dr. Charles E. Irwin, Warm Springs; Dr. Oscar Miller and Dr. Julian E. Jacobs and associates, Charlotte Memorial Hospital; Dr. William M. Roberts and associates, North Carolina Orthopaedic Hospital; Dr. J. Warren White and associates, Shriner's Hospital, and Dr. Lenox D. Baker and Dr. Beverly Raney, Duke University School of Medicine.

A. M. A. Membership Hits Peak.

The American Medical Association has 131,590 members and 72,243 Fellows as of March 1, 1947. To qualify as a Fellow, a doctor must be a member in good standing of the A. M. A., graduate of a recognized medical school, pay Fellowship dues and subscribe for *The Journal*. Formal application must be made to the Judicial Council for approval. Only those members who qualify as Fellows are eligible for election as officers, may serve as members of the House of Delegates, may register at the annual sessions of the Association or may participate in the work of its scientific sections.

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THE PRESENT STATUS OF SHOCK THERAPY*

R. FINLEY GAYLE, JR., M.D.,
and
CLAUDE L. NEALE, M.D.,
Richmond, Virginia.

In the past twenty years, psychiatry has made excellent strides. More has been accomplished in this time than in the hundred years previous. In the last five to ten years, physicians and medical students have learned to recognize psychiatric problems early. Medical students are now learning a more sympathetic approach and patients themselves are learning to seek psychiatric treatment for mental disorders before the illness reaches a malignant stage. The so-called "shock therapies" have now become established as valuable aids in psychiatric treatment. Chief among these are pharmacological shock, insulin shock, insulin sub-shock brief stimulus and electro-shock. In addition to these, the operation known as prefrontal lobotomy, or, as preferred by some, prefrontal leucotomy, has become an established procedure in certain types of cases.

At present, the three principal types of so-called shock therapy are insulin hypoglycemia, first introduced by Sakel in 1928, metrazol convulsive therapy advocated by Von Meduna in 1934, and electro-shock convulsive therapy proposed by Cerletti and Bini in 1938. Recently, a new type of electric shock machine has been developed, known as the brief stimulus apparatus. It is said to be safer and to cause less after effects (no memory defect, less apprehension) than the machine now in general use. It is simply an improvement and modification of the standard machine.

A group of California workers are now experimenting with "electric narcosis", where so-called electric sleep is induced. This is still in the experimental stage.

Various combinations of the above methods are used and other drugs have been tried by research groups. Electro-shock therapy, either alone or combined with insulin sub-shock therapy is rapidly becoming the procedure of choice. It is the least complicated, patients apparently have less anxiety and apprehension for this type of treatment and very often there is amnesia for the treatment itself.

*Read before the annual meeting of the Medical Society of Virginia, at Virginia Beach, October 14-16, 1946.

The obvious clinical effect of this type of therapy is the production of a brief period of unconsciousness. What actually happens in terms of physiology and psychology has not been demonstrated adequately.

The many theories fall into two groups, the organic and the psychological. On the organic side, there are many who believe that the results are due to cerebral anoxæmia. Another large group insists that the basis for the results lies in the effect on the vegetative nervous system. On the psychological side, the simplest theory is that the release of inner tension and the transformations that occur during the period of amnesia are dominant factors in producing improvement.

Obviously the details of the technique have no place in this paper. However, we will mention briefly the general procedure. In electro-shock, we use from 350-700 milliamperes of current for one-tenth to five-tenths of a second, at a voltage of seventy to one hundred and thirty volts.

In metrazol therapy from 2 to 5 cc. of a 10 per cent aqueous solution of metrazol is injected intravenously rather rapidly. If a seizure does not follow, the metrazol is repeated twice, if necessary, with an increase in dosage of 1 cc. each time. As mentioned, there are two methods of insulin therapy; either insulin shock or coma is produced, or the insulin reaction is terminated in the pre-coma stage, and called sub-shock. In either case, the patient is started with 15-30 units of insulin the first day and the dosage increased ten to fifteen units a day until the desired reaction is obtained. The dosage is then held at that level until maximum improvement or, if improvement does not result, until the patient has received thirty to fifty treatments. Electro-shock treatments are usually given three times a week, but in certain types of cases daily treatments for a few days are necessary.

We have learned that electric shock treatment, given more frequently than we formerly gave it, will often quiet a very disturbed patient in a few days. In fact, we are giving what we describe as a "double barrel" treatment, in which one electric shock is

followed by another even before the patient regains consciousness. In some instances we are giving two a day and we are frequently giving a treatment on successive days for four or five times. It is seldom that patients, no matter how violent and disturbed, cannot be kept quiet and held down by this treatment. The confusion has been considerable but this has always cleared up and no damage has been noticed.

There are certain cases, particularly elderly people, who respond promptly to electric shock therapy then after a few months have a return of symptoms, and again respond promptly when treatment is reinstituted. We usually give this type of case one electric shock treatment a week for a period of several months, hoping that a recurrence of symptoms will be avoided.

We do not advocate this form of therapy for every mental illness, but it has certainly proved effective in a variety of mental disorders. Practically all therapists agree that in the affective disorders where the chief disturbance is in the emotional field, electro-shock therapy is indicated. That in most all types of depressions, the period of depression is definitely shortened is generally admitted. Particularly is this true of involutional melancholia. In other types of involutional psychoses, such as the paranoid type, though the delusional content sometimes remains after treatment, the tension is usually relieved. We have, however, had several paranoid types of involutional psychoses in which the patients lost their delusional content entirely following electro-shock treatment.

In the manic depressive psychoses, both the manic type and the depressed type, improvement usually results early. In schizophrenia, the relative value of electro-shock therapy as compared with insulin therapy is debatable. In our series we find that many cases of early schizophrenia are improved with electro-shock therapy, and in many of the catatonic type remission of symptoms is brought about more rapidly with electro-shock treatment. In more advanced schizophrenias, we prefer the combination of electro-shock therapy with sub-shock insulin therapy. There are some who take the stand that electro-shock therapy has no place in the treatment of the psychoneurotic. We have found that in some obsessive-compulsive states, electro-shock has been of distinctive value, and certainly in the psychoneurotic type of reactive depressions the period of depression is shortened. We believe, too, that sub-shock insulin therapy has a definite place in the treatment of the psychoneurotic, particularly in relieving the tension and rendering the patient more amenable to psychotherapy. In all types of mental disorders, but particularly in the psychoneuroses, very careful selection of cases is essential.

When it comes to the selection of cases, the question of contraindications arises. We do not believe that there are many absolute contraindications to electro-shock treatment. Certainly active pulmonary tuberculosis, certain types of bone disease, very severe myocardial disease, malignancies and severe organic brain disease do contraindicate the use of this type of therapy. However, arterial hypertension, moderate arteriosclerosis and even some myocardial damage are not absolute contraindications. Each patient must be considered individually and the advantages to be gained compared with the additional risk. For example, suppose we have an agitated depression in an individual who has some myocardial damage. Is the load on the heart greater when he has an electro-shock treatment, or when he is walking the floor constantly, moaning and groaning, refusing to eat, resisting all medication, and requiring tube feedings or sedation and intravenous therapy? Or suppose we have a disturbed manic type of manic depressive psychosis who is extremely over-active and has some arterial hypertension; which increases his blood pressure more, electric shock treatment or his excitement and violent behavior? By the judicious use of sedatives before the treatments we have been able to considerably lessen the amount of rise in blood pressure which usually occurs during an electro-shock treatment.

There are certain individuals who are so fearful and apprehensive of the procedure that it is necessary to amytalize them, which is a drawback to the procedure because it makes them more tolerant to electricity and a greater volume of electricity is needed to produce the desired effect. We are now using hyoscine before treatment hoping that this will allay the apprehension and we are of the opinion that it does help. Coramine was used intravenously after shock to reduce the period of confusion and get the patient alert and awake more quickly but we are not enthusiastic about our results. Curare was used at one time on all patients. We stopped it for a time but had many more cases of spinal

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compression. We are now beginning to use it on all cases under fifty years of age.

Brains from experimental animals treated with doses of electricity comparable to those used clinically have failed to disclose any significant changes in the central nervous system. In the human, normal brains (from the neuropathological standpoint) are rare and hardly ever found in bodies dead from the usual diseases. Hence, the difficulty in evaluating changes in the brain of those who have had insulin or electro-shock. We have successfully given electro-shock treatment to disturbed paretics and to some patients who previously have had prefrontal lobotomies.

The most likely complications of a physical nature to the procedure are cardiac failure, circulatory collapse, cerebral vascular accidents and various fractures and dislocations. By proper selection of patients and careful study before treatment is instituted, both clinical and electrocardiographic, these complications are kept at a minimum. When respiratory difficulty is met, prostigmine and coramine are used. Fractures of long bones have been reported in literature, but in our series of cases there have been none. Fractures of the pelvis, particularly of the acetabulum have been reported, all occurring in aged patients. We had one such fracture, which was in a seventy-six year old patient. Compression fractures of spinal vertebrae are the most common complications. These fractures usually result in no disability and many are discovered only on x-ray examination; some of them cause pain and discomfort for a few days and, with conservative treatment only, soon become asymptomatic. In over ten thousand treatments, we have had only about thirty-five such fractures. In treating the first two or three we used plaster casts, but it was soon learned that the conservative treatment with no cast or brace resulted in symptomatic improvement much sooner.

We are always aware of the potential risk of fatal accidents, but actual fatalities from electro-shock treatment are extremely rare. Kalinowsky reported more than 2,000 cases without a fatality. We have had one fatality, and autopsy showed fatty degeneration of the heart, particularly in the right ventricle. Grossly, the brain showed a cystic enlargement of the fifth ventricle. Microscopic studies were not significant.

SUMMARY

In summary, the thousand cases treated with electro-shock treatment and the six hundred treated with insulin therapy represent a cross section of the types in which we have found convulsive therapies to be valuable. By careful selection of cases and thorough physical survey before treatment is instituted, complications are kept at a minimum. Many conditions previously considered contraindications to electro-shock treatment, such as moderate arterial hypertension and some myocardial damage, are not now so considered. Always the danger must be weighed against the probable benefit. With the development of the new brief stimulus machine, unpleasant effects, such as post shock memory impairment and confusion, are diminished. Electro-shock treatment, combined with insulin therapy, insulin shock therapy, and insulin sub-shock therapy, all have a definite and established place in the treatment of the psychoses and psychoneuroses, but are not to be considered substitutes for good sound practical psychotherapy.

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Professional Building.

DISCUSSION

DR. JOSEPH E. BARRETT, Williamsburg: I am very pleased to have this opportunity to discuss Dr. Neale's paper, and I should like to make a few side remarks before commenting on its contents. I should like to express my personal appreciation to the Program Committee of this Society for including three very important papers on mental disorders in its program and also to our President for his very pertinent remarks in his address last night in regard to the whole problem of mental disorder. I know of no other condition in which you, as general practitioners, show less interest in your patients than after they have been committed to a mental hospital. It is very rarely that we have inquiries from you as physicians regarding your patients whom you have sent there. I frequently try to get physicians to go with me through some of the hospitals, and they comment that they are a little bit afraid that they might not get out. I am frank to say that sometimes I am fearful, and the only thing that gives me great confidence is that I carry the keys.

Shock treatment is, as Dr. Neale has said, a well established therapeutic measure in the treatment of mental disorders. I think the term "shock treatment" is somewhat of a misnomer. It grew out of Dr. Sakel's investigations in connection with the treatment of drug addicts, in which he used insulin and put them into a state of insulin shock. He observed that in those cases that went into deep shock the drug addicts very rarely showed, on withdrawal, mental symptoms. From that the treatment of mental disorders came. Then Dr. Von Meduna observed that epileptics very rarely show symptoms of schizophrenia or dementia praecox, and he began to use the convulsive seizure in the treatment of dementia praecox. He began search for some drug to produce the seizure and, of course, used camphor. From that we derived the use of metrazol, which is a camphor derivative. So, when we speak of shock treatment, what we really mean is the use of the convulsive seizure in the treatment of mental disorders.

Since the use of metrazol a simpler method has been developed, which is the use of electric stimulus. All it does that we know of is produce the convulsive seizure. Some of us have tried to produce subconvulsive reactions, to see if we got the mental improvement; but I think it is generally conceded that in the great majority of those with mental disorders the subconvulsive stimulus does not produce the results that the convulsive stimulus produces. Why, I do not know, and I do not think anyone knows. I think of all of us would agree that to produce a convulsive seizure is contrary to the economy of the human being, but we do know that as a matter of practice it produces very satisfactory results in certain types of mental disorders; and it has produced results in such a favorable degree that it has become a fixed procedure, I believe, in the treatment of mental disorders. By comparison, we might say that before the use of convulsive procedures we could fairly well predict that fifteen per cent of cases of dementia praecox would show a spontaneous remission under the use of the expectant type of treatment, hydrotherapy, psychotherapy, occupational therapy, and so on. We continue to use those therapies in connection with convulsive shock.

At the Eastern State Hospital, in the last few years, we have treated a total of 673 cases with convulsive-shock treatment. We have given an average of six stimuli per patient, making a total of 4,038. In that group we have had no fatalities and have had no serious accidents. We have had a few compression fractures of the vertebrae, but we have not considered those serious. Indeed, a few years ago Funkhouser and Barrett, in a study published in the *Journal of the American Psychiatric Association*, showed that the number of compression fractures occurring in shock-treated cases was no greater than those observed in epileptics.

We have a recovery rate of around thirty-five per cent. I think that is a sufficient improvement to warrant our continuing the use of electric stimuli or convulsive seizures in our cases of dementia praecox, and our results are not anything like as favorable in that group of cases as in some of the others. For instance, in our cases of manic-depressive psychosis we have a recovery rate of ninety per cent, and in our cases of involutional melancholia we have a recovery rate of seventy-eight per cent. There are clinics that quote higher rates, but these rates of recovery in our clinics are for one year after treatment.

We have not used curare or intercostin in our efforts to reduce the magnitude of the seizure or the pull of the muscles on the vertebrae, and I think Dr. Neale's figures demonstrate the futility of the use of that drug. It is added complication to your patient in treatment.

We have discontinued the use of metrazol. We continue the use of electric stimulus and insulin. We have discontinued the use of metrazol for the reason that there is an interval between the injection of metrazol and the seizure in which the patient undergoes a period of tremendous fear. He has a feeling of something dangerous impending, so we have discontinued the use of that drug.

It is a big problem, but I believe the convulsive treatment of mental disorders is a therapeutic measure that has come to stay. There is a great deal to be found out about it. As Dr. Neale said, we do not know how it produces its benefits. There are numerous theories. The one gaining most support is that there is some sort of electro-physico-chemical change in the brain cells brought about by the treatment, which causes the improvement.

XUM

PENICILLIN IN THE TREATMENT OF LUNG ABSCESS IN INFANTS AND CHILDREN*

GEORGE A. WELCHONS, M.D.,
and
EDWIN L. KENDIG, JR., M.D.,
Richmond, Virginia.

Until recently lung abscess in infants and children has been considered of rare occurrence. However, review of the literature indicates that it is not infrequent. D'Ingianni[1] reported 417 cases including 64 infants and children. Graham[2] reported an incidence of 18.3 per cent in infants and children. In Valle's[3] series 10.2 per cent occurred in children.

The diagnosis is more apt to be overlooked in children because of the lack of expectoration of the characteristic foul sputum. The more general use of the x-ray in diagnosis has been an important factor in the increase in number of cases reported. An x-ray examination should be made in all cases of respiratory infection with suggestion of localized pathology.

The treatment of lung abscess in all age groups has been far from satisfactory but the results obtained in infants and children have been even more disappointing. For example, in D'Ingianni's[1] series of 64 cases, one patient recovered, 24 were improved, 13 were unimproved, and 26 died.

Smyth and Billingslea[4] recently reported four adult cases treated with penicillin, with recovery. They were able to collect 29 additional cases reported up to that time. Among these there were two infants, one 2½ months and one 8 months of age. Both had cystic fibrosis of the pancreas. Both died of recurrence of the abscess after satisfactory response initially. We have been unable to find any additional cases in infants and children reported in the American literature up to this time.

While the results obtained with penicillin are still poor, there appears to be a definite increase in cures over previous methods of treatment.

The universally poor results in infants and children warrant a discussion at this time. We have had the opportunity to treat only three cases and realize that no conclusions can be drawn, but report these cases with the hope that all cases treated will be reported, thus enabling a review of the efficacy of penicillin.

*Read before the annual meeting of the Medical Society of Virginia, at Virginia Beach, October 14-16, 1946.

ETIOLOGY

The causative organism must enter the lung either by way of a penetrating wound, the lymphatics, the blood stream or by aspiration through the air passages. The most common causes are:

(1) Operation on the oropharynx
(2) Pulmonary inflammations
(3) Abdominal operations
(4) Neoplasms of lung, bronchi, esophagus and mediastinum
(5) Trauma
(6) Foreign body
(7) Septicemia

There are probably fewer cases due to tonsillectomy than previously supposed. Smith[5] groups abscess as: (1) Bacterial (2) Fuso spirochœtal (3) Mycotic. He believes that staphylococci account for 75 per cent of all bacterial abscesses and 50 per cent of all abscesses in children.

The diagnosis of lung abscess should be suspected in any case of pulmonary infection with a history of recent operation under general anesthesia, particularly when the operation involved the nose and throat, history of unconsciousness or convulsions, aspiration of a foreign body or pulmonary infection persisting for more than two weeks. The possibility of lung abscess as the underlying cause should be considered in all cases of empyema.

The physical findings are apt to be indefinite. Impaired resonance, moist rales and wheezes may be present. Small centrally located infections may present no abnormal findings on physical examination. Persistent temperature elevation and cough will point to chest pathology. The x-ray may not show abscess cavity either, due to the fact that the process is very early, the cavity is filled or films were not taken in the proper position. All suspected cases should have upright postero-anterior and lateral films. Oblique films are often helpful. Serial films are necessary for accurate diagnosis and treatment. Early diagnosis and prompt institution of treatment will favorably affect the prognosis.

Tuberculosis, interlobar empyema, bronchiectasis,

infected lung cysts and foreign body must be considered in the differential diagnosis.

TREATMENT

Bed rest, postural drainage and penicillin in adequate dosage by the intramuscular route should be begun as soon as the condition is suspected. Attention should be given to diet, with an adequate supply of proteins, calories and vitamins. Blood transfusions are frequently necessary.

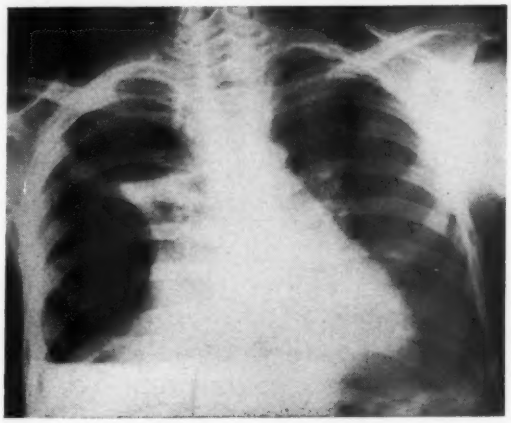

Fig. 1. Case 1. Admission film showing pneumothorax, adhesion to the lateral chest wall, slight pleural fluid, and appearance of cavity in the upper lobe.

In carrying out postural drainage, the infant's hospital bed can be used to advantage. It is necessary to localize the lesion as to whether this is upper, middle or lower lobe involvement and whether located anteriorly or posteriorly. If satisfactory drainage cannot be obtained by the postural method, then bronchoscopic drainage becomes necessary. Frequently lack of drainage is found to be due to inspissated secretions, granulations or bronchial stricture. The thickened secretions are aspirated, excessive granulations removed with forceps and strictures dilated. If there is any suspicion of foreign body, bronchoscopy should be done immediately.

Barach[6] and others have recommended nebulized penicillin in the treatment of lung abscess. He reported a case which recovered when aerosol penicillin was administered after no response had been obtained from penicillin intramuscularly. If satisfactory response is not obtained and drainage appears adequate, then nebulized penicillin should be given a trial. In young children this is best administered by a catheter in the oropharynx.

It is our feeling that the bronchoscopist and surgeon should be consulted early in the disease. It is unwise to wait until the cavity wall has become thickened or bronchiectasis extensive. If a satisfactory response is not obtained, certainly within six weeks, then surgical drainage should be considered. Neuhoff[7] advises immediate one stage surgical drainage in acute putrid abscess. The type of procedure must be decided in each individual case. Certain cases will probably require lobectomy or pneumonectomy. It is doubtful if cases with bronchial stricture will respond satisfactorily to drainage. Bronchoscopy should be advised in all cases in which surgery is deemed necessary.

Empyema following lung abscess requires surgical drainage. Treatment by aspiration and instillation of penicillin would not seem to be justified.

CASE REPORTS

Case 1.—J. W., a thirteen year old white male, had symptoms of a cold for two weeks. He was seized suddenly on January 18, 1945, with a severe pain in his right chest, with difficulty in breathing, followed by high fever.

When seen he appeared seriously ill. There was moderate degree of cyanosis, breathing was rapid, he was belching constantly, and his breath had an odor of hydrogen sulfide. Temperature was 105, pulse 140, and blood pressure 100/60.

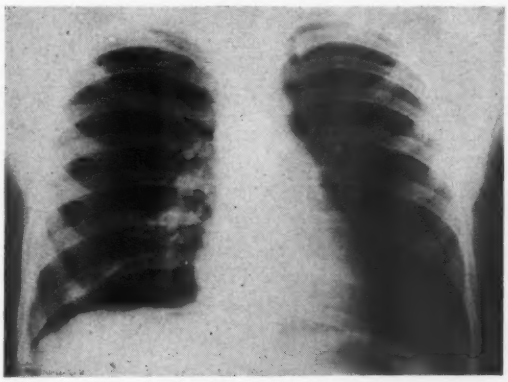

Fig. 2. Case 1. Film almost two months later, showing complete clearing of the pathologic process.

Examination revealed enlarged and infected tonsils. The left lung was negative. There was tympanitic percussion over the entire right chest with auscultatory signs of tension pneumothorax. There was little change in position of mediastinum.

XUM

X-ray examination on admission to the hospital showed a pneumothorax on the right with adhesion to lateral chest wall, slight pleural fluid and appearance of cavity in the upper lobe.

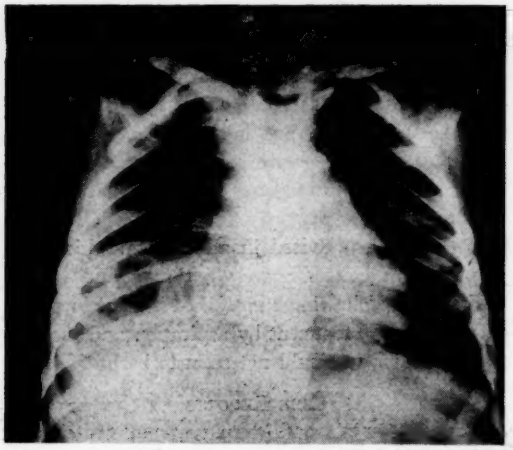

Fig. 3. Case 2. Admission film showing abscess cavity with considerable reaction in the surrounding parenchyma.

Laboratory studies revealed the following: Hemoglobin 98 per cent, red blood cells 4,900,000, white blood cells 18,600, and a smear showed 88 per cent polymorphonuclear cells. Urinalysis was negative. He was referred to Dr. I. A. Bigger for surgical drainage.

A catheter was inserted through an intercostal trochar and a small amount of foul smelling, thin brown fluid obtained. Closed drainage was maintained by the water bottle method. Culture of pleural fluid showed anaerobic streptococci.

Patient was started on penicillin 15,000 units every three hours intramuscularly. This was continued for ten days, followed by sulfadiazine fifteen grains every four hours for twelve days.

There was a prompt drop in temperature within forty-eight hours. The empyema cleared promptly and the lung re-expanded. He continued with some cough for about two weeks after hospitalization. He was discharged on the twenty-fourth hospital day.

X-ray examination in March, 1945, showed complete clearing. Patient showed no pathology.

Case 2.—J. H., a three year eight months old white male, was admitted to the hospital with history of illness of one month's duration, beginning with an upper respiratory infection, and followed almost immediately by a rash diagnosed as scarlet fever. One week prior to admission he had a two day period of normal temperature, but this was followed by another febrile episode during which his temperature ranged between 101 and 104 degrees.

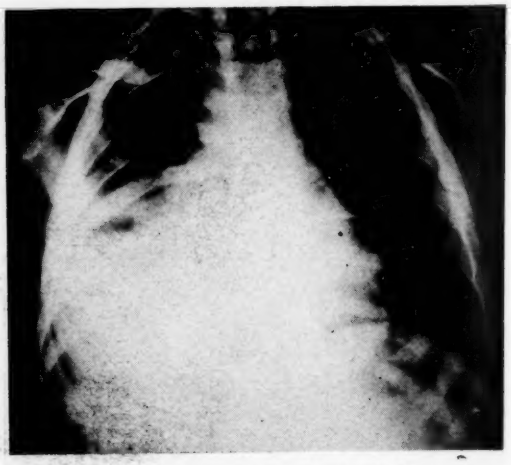

Fig. 4. Case 2. Admission film taken in upright position, showing abscess cavity with fluid level within the cavity.

At time of admission, the only other symptoms were a slight headache, one vomiting spell, lack of appetite and irritability.

Physical examination on admission revealed an acutely ill child sitting quietly in bed. Temperature was 101.6 degrees. There were herpetic lesions about the lips. Examination of the chest revealed dulness to percussion and diminished breath sounds below the right scapula. There was an occasional moist rale over this area.

Laboratory studies showed the following blood picture: Hemoglobin 63 per cent, red blood cells

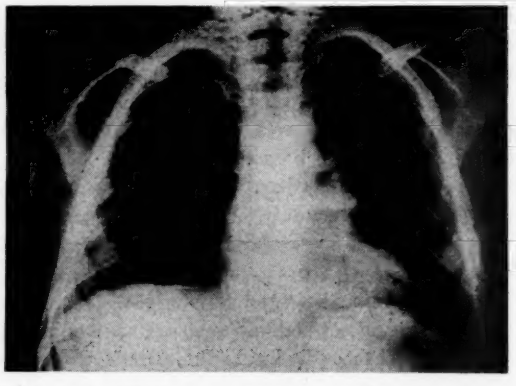

Fig. 5. Case 2. Film six weeks after admission, showing complete clearing of process.

4,100,000, white blood cells 18,200 and a smear containing 76 per cent polymorphonuclear cells. Urinalysis showed a slight trace of albumin, but was otherwise negative. Tuberculin test (first strength P.P.D.) was negative. Sputum examination revealed no acid fast bacilli, but a technical error prevented culture of the one good specimen obtained. Chest x-ray at time of admission revealed a cavity in the right lung base, with marked reaction in the surrounding parenchyma. Upright films showed a fluid level within the cavity.

Diagnosis of lung abscess was made and the child was treated with penicillin 5,000 units intramuscularly every three hours and postural drainage.

The fever gradually dropped so that at the end of one week the daily maximum temperature was 101 degrees (rectal). On the eighth day of hospitalization, he had one prolonged spell of coughing which was productive of about one ounce of greenish yellow purulent material. The odor was not particularly bad. Immediately after this the temperature dropped within normal limits and was never again elevated.

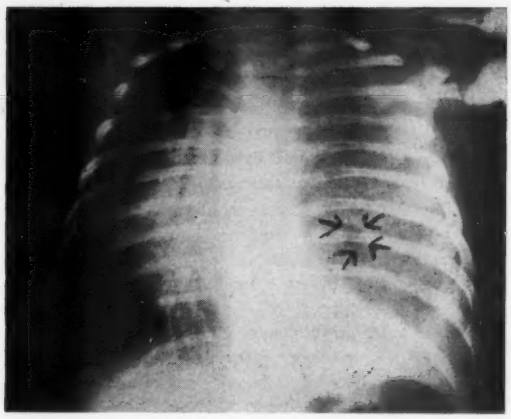

Fig. 6. Case 3. Admission x-ray revealing massive effusion in the left chest and appearance of abscess cavity.

Serial x-ray films revealed a gradual diminution in the size of the lung cavity and clearing of the surrounding zone of reaction. Film taken six weeks after admission showed the lungs to be clear and penicillin was accordingly discontinued. In subsequent films at twelve weeks and ten months the lungs were still clear.

Case 3.—C. M., an eleven weeks' old baby boy, was well until ten days before admission to the hospital when he developed a cold which seemed to be improving. On January 16th, he began to have rapid respiration with temperature 104 degrees. He was brought into the hospital and started on penicillin and for the next twenty-four hours seemed to improve. However, on January 18th he became worse with cyanosis and marked difficulty in breathing.

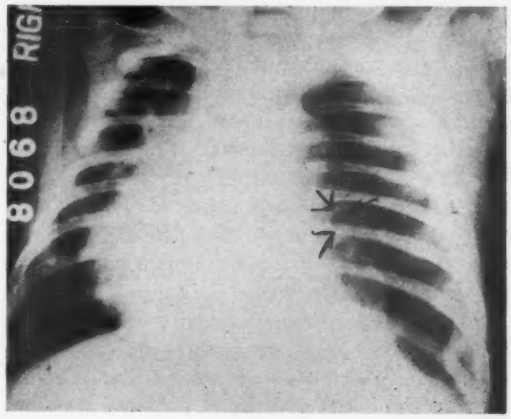

Fig. 7. Case 3. Film taken after aspiration of purulent material.

At this time his temperature was 103, pulse 150, and respiration 60. There was a grey cyanosis and he appeared desperately ill.

X-ray of the chest showed appearance of massive effusion on the left, with marked shift of heart and mediastinum to right and appearance of an abscess cavity in the upper lobe.

Physical examination suggested a tension pneumothorax on the left. A needle was inserted in the left anterior fifth interspace and air under pressure was evacuated. The needle was inserted posteriorly and 300 cc. of thick, yellow pus removed. 25,000 units of penicillin was instilled following aspiration. There was marked improvement with quiet respiration and the baby immediately dropped off

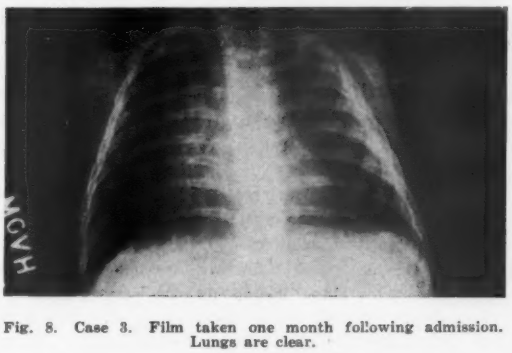

Fig. 8. Case 3. Film taken one month following admission. Lungs are clear.

to sleep. However, in about thirty minutes he again was in marked respiratory distress with recurrence of tension pneumothorax. He was then seen by Dr. I. A. Bigger who immediately inserted intercostal catheter with release of air followed by free drainage of pus. Closed drainage was continued by the water bottle method.

Laboratory studies showed hemoglobin 58 per cent, red blood cells 2,920,000. The smear showed 51 per cent polymorphonuclear cells and 49 per cent lymphs. Urinalysis was negative. Culture of pleural pus showed staphylococcus aureus. Penicillin 15,000 units every three hours, intramuscularly, was continued for thirty days.

There was slow, but progressive clearing of the empyema, the lung cleared and the patient was discharged on the thirty-sixth hospital day. Patient has remained well.

Due to persistent slight temperature elevation, sulfadiazine one grain every four hours was started on February 8, 1945, and continued for five days.

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DISCUSSION

DR. I. A. BIGGER, Richmond: In my experience lung abscess is considerably less common in children than in adults. I say this in spite of some of the figures presented from other clinics, particularly Dr. Graham's clinic and those from the Charity Hospital Clinic in New Orleans. I realize that they are often overlooked, but I am still convinced they are less frequent. They are more serious in children than in adults, and they are serious enough in adults. The results, up to recent years, have been very discouraging.

I should like to confine my remarks to the treatment of lung abscess. I feel, as Dr. Welchons does, that up to the present time we should have carried out intensive conservative therapy first, but such treatment should not be continued too long. We should give very large doses of penicillin, around 100,000 units every three hours in the adult, with comparable amounts for children. When one of the sulfa drugs is added some of these abscesses will clear up. If the results are not satisfactory we should do bronchoscopy, not only from the standpoint of therapy but to complete the diagnosis. Dr. Welchons pointed out there is always the possibility of the presence of a foreign body.

Lung abscesses will not clear up under chemotherapy of any kind without adequate drainage; failure is certain if adequate drainage is not instituted. If the response is not good following bronchoscopy, I think prompt surgical measures should be undertaken. In many cases—I believe in most—the simple surgical measures should be tried first. Unroofing the abscess, packing the cavity and keeping it open will cause many to heal. If they go into the stage of chronic abscess with associated bronchiectasis, only radical surgical measures will effect a cure. By that I mean lobectomy or pneumonectomy.

In multiple abscesses a combination of conservative surgery and continued intensive chemotherapy will cure some.

I am convinced that from now on the results in lung abscess will be much better than in the past, due to better understanding of the problem involved, the administration of large amounts of penicillin and sulfa drugs, and the addition of radical surgery to the conservative measures we have employed over a period of years.

I enjoyed Dr. Welchons' paper, and I think it is a very valuable contribution at this time.

DR. E. C. DRASH, Charlottesville: Dr. Welchons has been very fortunate in the results he obtained on these three children. Those of us who treated lung abscess in the old days, before chemotherapy, realize what a hopeless proposition it frequently was. We do not see the severe cases of pulmonary gangrene any more. Much to my surprise, we have seen a few cases of real lung abscess that recovered completely on chemotherapy and bronchoscopy.

On the other hand, these drugs so change the picture that there is a tendency to carry the treatment to a point beyond which it can do no good to the patient. One case we have seen recently is illustrative of that. An eighteen-year-old girl was kept in a hospital in the State for a period of nine months on chemotherapy. When we saw her she had not only lung abscess but rather extensive empyema. We drained the empyema first, and in the course of about six weeks the patient gained about fourteen pounds in weight. She had several bronchoscopies, and the lung abscess was not bothering her a great deal. Eventually we got around to draining the abscess, but the patient has had a pulmonary hemorrhage, and I think probably after this long period of time we are going to have to do a subtotal or total pneumonectomy. I think if appropriate measures had been instituted earlier she would have been saved complete loss of the affected lung.

These drugs have changed the old picture so much that we must all be on the lookout to care for these patients before they become chronic. We have seen some

cases treated over a long period of time in which the patient was almost symptomless, with very little cough and very little expectoration, yet the X-ray still shows the existence of a cavity lined with epithelium, which will continue there for years. I have one patient, an electrician, who had a lung abscess fifteen years ago. The X-ray still shows the existence of a small cavity. The patient is getting along so well that he refuses to have anything done about it, but I am afraid sometime in the future he will have difficulty.

We have seen patients discharged from the hospital with plural fluid following pneumonia. Several of these patients have come back with empyema, which made the problem much more difficult, and the convalescence much longer.

DR. E. L. KENDIG, JR., Richmond: I am up here merely to emphasize the several points we have tried to set forth. One is that lung abscess, particularly in infants and children, is a serious disease and that penicillin appears to be a valuable adjunct in the treatment. But three cases hardly constitute a large series. Drainage of the abscess is a necessity, and if this cannot be accomplished by postural methods then bronchoscopy is necessary. There are several problems in trying to induce postural drainage in the small child. An example was the three and one-half-year-old child. Tilting his bed to obtain the desired position was impossible, because we found the child would climb up on the bed. His mother was in constant attendance, or presumably so, but she had to leave sometimes. One way she found to get postural drainage for fifteen or twenty minutes a day was to let him hang over the end of his bed and hold onto the edge of his mother's cot while the mother threw pennies under the bed and let him point them out to her. Then the poor mother would crawl under the bed to get them. But she did manage in that way to keep him on postural drainage for a short period, and finally the child would have a little coughing spell.

DR. WELCHONS, closing the discussion: I thank Dr. Bigger, Dr. Drash and Dr. Kendig for their discussion. I have nothing to say except to emphasize what they all have said—that lung abscess is a serious disease. Don't keep these patients in the hospital too long on conservative treatment, but, if they are not responding to penicillin and postural drainage, institute other measures.

Floral Eponym (52)

DAHLIA

ANDERS DAHL, 1751-1789

Dahl was born March 17, 1751, and died May 20, 1789. He was Linnaeus' favorite pupil. His graduation thesis at Upsala was *Dissertatio entomologica bigas insectorum sisteus* . . . . Upsaliae, typis Edmannianis, 1775. He graduated M.D. at Kiel in 1786 but did not practice medicine, although he taught and was botanical demonstrator in the medical faculty at Aabo (Helsingfors). He gave to the University his herberium of some 6,000 species. Dahl never married. Cavanilles named the Dahlia for him the year before he died.

Dahli is a small but important genus of tuberous-rooted herbs of the Composite family. The dozen or more species that have contributed to the modern dahlia are all from the uplands of Mexico. A few other species are found in Central America and the northern part of South America.

XUM

SEVERE AND FATAL RHEUMATIC FEVER WITH PANCARDITIS IN VIRGINIA*

PAUL D. CAMP, M.D.,
and
LOUISE CALVIN, M.D.,
Richmond, Virginia.

In 1942 we presented a paper before this Society in which we endeavored to point out that too much emphasis was attached to the part played by polyarthritis in the disease. Thus, attention was diverted from the most important features of the disease, namely, the mildness of the joint symptoms, the involvement of the heart in nearly every case, and the marked tendency toward recurrence and chronicity. May we again call your serious attention to the above mentioned statement.

Today we wish to point out that in addition to the more insidious forms of rheumatic fever, which, nevertheless, may develop eventually into severe rheumatic heart disease, there occurs in Virginia severe and at times fatal forms of rheumatic fever with pancarditis.

Rheumatic fever is a reportable disease in the Scandinavian countries and the incidence per annum ranges from one to three per thousand population. In this country Atwater and Swift have estimated that there are about 170,000 cases of rheumatic fever per year and Paul estimates that there are about 840,000 cases of rheumatic heart disease, active and inactive. Cases of active rheumatic fever account for from 0.1 to 5 per cent of medical admissions in general hospitals and probably twice that percentage in children's hospitals. Surveys reveal an incidence of rheumatic heart disease among school children of 0.3 to 4 per cent and among college students from 0.6 to 1 per cent. Rheumatic heart disease was found to be by far the greatest cause for rejection in the re-examination of 4,994 men rejected for general military services because of the diagnosis of cardiovascular defects. The incidence of rheumatic fever among infectious diseases is only exceeded by syphilis. Statistics of the Metropolitan Life Insurance Company show that between the ages of five and nineteen years, rheumatic fever is, among diseases, the leading cause of death. Hedley found that in Virginia from 1922 to 1936 the mortality rate from heart disease between the ages of five to twenty-four years was 11.2 per 100,000, and we agree with Hedley that practically all of these deaths were due to rheumatic heart disease.

At the rheumatic fever clinic we have seen from May 1, 1940, through April, 1946, 339 cases diagnosed definitely as rheumatic fever and rheumatic heart disease; forty cases of congenital heart disease, 99 cases of possible and potential rheumatic heart disease, and the diagnosis has been deferred in 365 cases. There have been 15 deaths due to rheumatic fever and rheumatic heart disease.

Statistics from the State of Virginia for the year 1945 reveal the following: Deaths from rheumatic fever and acute rheumatic heart disease 44; chronic rheumatic heart disease 419, or a total of 463 deaths due to rheumatic heart disease. Since 78 of the cases listed as dying because of chronic rheumatic heart disease were under thirty years of age, we believe that these could probably be classified under acute rheumatic heart disease, as congestive failure in chronic rheumatic cases under thirty is presumptive evidence of recurrent activity. There were 6,912 deaths from heart disease, with no mention made of rheumatic origin or condition; this did not include 159 congenital heart disease deaths; hence, we believe that since 81 of these cases were under thirty years of age, these were in all probability cases of rheumatic heart disease. Thus, there were 203 cases, in our opinion, of deaths due to actual active rheumatic fever carditis.

After careful consideration of the above facts, there is no doubt that the problem of rheumatic fever and rheumatic heart disease is one of the most serious medical problems in the United States and Virginia. The problem is of grave significance when considered from the number of deaths caused by the active disease as well as the large number of cardiac cripples and those later dying of chronic rheumatic heart disease. We wish to present a few cases illustrating the fact that we do see in Virginia severe and fatal or near fatal cases of rheumatic fever and pancarditis.

*Read at the meeting of the Medical Society of Virginia at Virginia Beach, October 14-16, 1946.

Case 1.—L. L. L., first seen in the rheumatic fever clinic on 1-27-43 at the age of fifteen years. She had tonsillitis often before a tonsillectomy was done at the age of six years. At nine years of age, in the winter, the patient had a first definite attack of rheumatic fever with pain in one hip and then in the other. She was in bed for several weeks. The next fall, at nine and a half years, there was a sudden onset of recurrent rheumatic fever, temperature 104, generalized maculo-papular rash, severe nose bleeds, and severe, acute migratory polyarthritis involving practically all joints. She was in bed for six months, suffered from orthopnea and had to use a back rest. At ten and a half years, the next fall, she had a recurrent milder attack of rheumatic fever with polyarthritis. She was in bed only a short time. At the age of eleven, the following summer, she had another severe attack of recurrent rheumatic fever with severe migratory polyarthritis and nose bleeds, temperature of 104. She was in bed several months. The patient had another severe spell the winter she was fourteen years old with fever, rash, nose bleeds, and polyarthritis, severe abdominal pains and cardiac decompensation.

After the last attack the patient did fairly well. The patient was not allowed to go to school but had to keep house and look after other children.

Physical examination revealed a tall, thin girl with an upper respiratory infection and cough, but examination of the lungs was negative. No evidence of congestive heart failure was present, the rate was 97. There were no thrills. The pulmonic second sound was greater than the aortic second sound and accentuated and split. The first sound at the apex was sharp and forceful. A long, loud, blowing systolic murmur was heard, loudest at the apex and transmitted to the axilla and precordium. A short, soft, low pitched, mid-diastolic murmur was present, localized at the apex. The heart was enlarged by physical examination and confirmed by x-ray and fluoroscopic studies which revealed enlargement, plus a straight left border and rather prominent pulmonary conus, suggesting mitral valve involvement.

The electrocardiogram was negative.

The diagnosis at this time was rheumatic fever, questionable inactive, mitral regurgitation and stenosis, and cardiac hypertrophy.

The patient's home situation remained very poor. She continued to do house work and then later, outside work. She came to the clinic irregularly. She was in the clinic about nine months before her death at which time she had recurrent rheumatic fever. The patient was next seen when she entered the Medical College of Virginia Hospital four days prior to her death with the following history and physical. The patient stated that three weeks prior to admission she was taken with a high fever, severe headache and polyarthritis. Two weeks later she entered the Medical College of Virginia Hospital very ill and orthopneic. On admission she was acutely ill, undernourished, had marked pallor and petechial rash on her chest. The neck veins were distended. There were moist rales at the bases of both lungs. The heart was markedly enlarged. The maximum apex impulse was located in the sixth interspace almost in the anterior axillary line. There was a harsh systolic murmur and a short presystolic murmur at the apex. There was a systolic thrill at the apex and the third left intercostal space. The liver was enlarged and tender. The temperature was 98.6, with respirations 30 and pulse 105. The patient became steadily worse and died.

Autopsy Report: A detailed report will not be attempted.

Lungs: Both lungs were covered by a very fine granular, fibrinous exudate. Both lungs were subcrepitant and had a doughy consistency except at the apex. On pressure, the alveoli and bronchi exuded a blood-tinged frothy fluid.

Heart: External description: The heart was markedly enlarged to the right and the apex was in the anterior axillary line about the sixth interspace. The pericardium was markedly thickened and was adherent to epicardium on all surfaces of the heart. Most of these adhesions were of recent character; however, there were numerous old fibrous adhesions present also. There was no free fluid in the pericardial sac. The heart weighed 450 grams. The epicardium was covered by fibrinous and fibrous tissue which was adherent to the pericardium. There were numerous subepicardial hemorrhages present on all surfaces.

The heart muscle was of somewhat softer consistency than usual. On sections the myocardium was brownish red in color and there was moderate diffuse scarring throughout. The wall of the right ventricle measured 0.5 cm. in thickness at the base and the wall of the left ventricle 1.8 cm. in thickness at a corresponding level. There was marked

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dilatation of the left auricle and ventricle. The endocardium was smooth and glistening throughout except in the wall of the left auricle where it showed considerable degree of thickening and wrinkling. The chordae tendinae of the tricuspid valve and the leaflets were thin and delicate. The pulmonary valve was not remarkable. The mitral valve, however, was dilated, easily admitting four fingers. The chordae tendinae of this valve were shortened and thickened. Along the line of closure of the mitral valve there were numerous very fresh appearing vegetations, the largest measuring 1 mm. in diameter. The edges of the mitral leaflets showed rolling and thickening; however, there was no fusion at the commissures. The aortic valve also showed some rolling and thickening of the edges of the leaflets; however, there was no fusion at the commissures. On two of the aortic valves there were small fresh appearing vegetation, measuring approximately 5 mm. in diameter. These vegetations were present along the line of closure. The coronary ostia were patent and the coronary arteries were thin walled and elastic throughout. The intima of the aorta was smooth with a yellowish tinge.

The anatomical diagnosis was as follows: Rheumatic pancarditis, active and old. Aortic and mitral verrucae, cardiac hypertrophy and old rheumatic pneumonia. Central hepatic necrosis. Splenomegaly. Focal glomerular necrosis. Hyperplasia and erythrophagocytosis of lymph node. Pleural effusion, right. Ascites, 400 cc.

Case 2.—The patient, L. H., colored male, age 11½ years when first seen at the rheumatic fever clinic in May, 1940. At this time the history was as follows: There was no family history of rheumatic fever. He had frequent sore throats since early childhood. From the age of seven years on he had frequent joint and muscle pains. The winter he was ten years old he had an attack of rheumatic fever ushered in with severe abdominal pain.

An emergency appendectomy was done for this and a normal appendix was removed. The patient developed a four plus involvement of multiple joints and severe carditis with dyspnea, cough and edema. He was said to have been sick for eleven months following this.

At eleven years of age, in the spring, he had recurrent one plus involvement of the joints. He was seen in the rheumatic fever clinic where conditions were recorded as fair; his heart was much enlarged, to-and-fro murmurs were heard at the mitral area and the aortic area, a systolic thrill was felt in the suprasternal notch with marked pulsation, rate 80. Blood pressure 112/68. An electrocardiogram revealed a PR interval of .18, notched P in one and two, peaked T in one; sedimentation rate (Cutler) 25 mm. At that time he was taking, drops 10, tincture of digitalis daily, which was continued. For the next nine months he had occasional joint involvements which were of brief duration, epistaxis, frequent colds with which he would develop a tight stomach, liver enlarged two to three finger breadths below the costal margin, pain in his chest, and he would sleep with his head on two to three pillows.

At twelve years of age in the winter, he was admitted to the hospital with severe bronchitis, epistaxis, multiple joint involvement and right and left-sided heart failure. Electrocardiogram showed a PR interval of .20 to .22, axis plus 110; signs of marked myocardial damage. He improved after mercupurin and digitalization. He was transferred to the convalescent unit for six months, remaining on bed rest and digitalis gr. 1½ daily. He had several bouts of low grade fever, hemorrhage from his gums, joint involvement, attacks of abdominal pain with liver enlargement while here. His heart remained greatly enlarged and the to-and-fro mitral murmurs were so loud and widely transmitted that the other findings were obscured; however, aortic diastolic murmurs were believed present. Several attempts to discontinue digitalis were promptly followed by edema and tachycardia.

After his return to his home he continued on digitalis and refused to follow bed rest for long at a time. He had recurrent bouts of ascites and abdominal pain and loose cough and would call the doctor for mercupurin. Dyspnea was always present. On one occasion he had a localized pericardial friction rub which was heard for several days. On one occasion, the patient ate salt fish for supper and this was followed by immediate intense abdominal pain and swelling, relieved by a diuretic.

At thirteen years, in the spring, seven months after discharge from the convalescent home, the patient developed jaundice, generalized intense itching, distended and painful abdomen, liver much enlarged and pulsating. He was admitted to the hospital for two weeks and treated with oxygen, digitalis and mercupurin. Upon discharge the liver was not pulsating, but soon after his return home it was again

noticed and has remained so with steady enlargement now extending almost to the iliac crest. One month later he had a milder attack of jaundice, itching lasting several days and he felt very ill, had cardiac decompensation and was re-admitted to the hospital for three weeks.

Following this, he remained at home, up and down, always with cardiac decompensation to functional class three or four, fairly frequent calls for diuretics, continued digitalis. The heart progressed in size, the maximum apex impulse was in the seventh interspace at the anterior axillary line, right axis deviation advanced to plus 150, T wave on electrocardiogram flat or inverted.

Progress Notes 4-15-43: At fourteen and a half years of age, in the spring, he was re-admitted to the hospital at his own request because of a tight painful abdomen. He remained one week. His liver decreased in size remarkably and pulsations were not noticeable. Cardio-thoracic ratio was 75. Two months later he had a severe cold with persistent cough and precordial pain, liver enlarged and abdomen tight. Blood pressure 117/78. His pulse was 92. The patient requested a diuretic. During the following six months he requested diuretics several times because of a tight painful stomach. In the mid-winter at fifteen years, he had a rather severe nose bleed which required packing. During the last six months, he has requested monthly injections of diuretics. In the mid-summer at fifteen year of age, he was hospitalized a few days because of a painful swollen stomach and edema of the legs and feet, orthopnea and cough and chest pain. He was sent home after one or two small doses of diuretics without any symptomatic improvement. He did not improve at home and was readmitted to the hospital and became steadily worse, suffering from severe congestive heart failure and died one month after his last admission to the hospital.

The autopsy report by Dr. Howe was as follows: (Note—a detailed description of all organs will not be attempted.)

Heart and Pericardium: The pericardial sac was completely obliterated by dense, old fibrous adhesions. Heart weight, 950 grams with parietal pericardium attached. The heart was tremendously enlarged, the enlargement affecting all four chambers. The left ventricle measured 23 mm. in average thickness; the right ventricle measured 10 mm. The mitral valve ring 8 cm., pulmonic 7½ cm., aortic 4½ cm., tricuspid 14½ cm. All four chambers were markedly hypertrophied and dilated. The mitral valve leaflets showed scarring and thickening with fusion of the anterior and posterior leaflets narrowing the valve opening to a buttonhole like slit. There was a moderate amount of calcification on the auricular surface of the anterior mitral leaflet. The chordae tendinae were thickened and shortened and several showed small beads up to 2 mm. in diameter. There was a rather marked scarring of the endocardium of the left auricle immediately above the posterior mitral leaflet. The papillary muscles of the left ventricle were markedly hypertrophied. The tricuspid valve leaflets showed slight thickening and rolling of their free margins but without any marked scarring, retraction or deformities. The aortic valve leaflets were markedly thickened, scarred and retracted so that the depth of the leaflets was about half the normal. There was some calcium deposit in the valve leaflet. The pulmonic valve leaflets showed no changes. Except for the scarred area in the left ventricle, the endocardium throughout was smooth and glistening. The coronary ostiae were of normal caliber and the coronary arteries were patent throughout with smooth glistening intima. The aorta was of normal caliber and its intima throughout was smooth and glistening.

Microscopic Description: The heart showed an old fibrous pericarditis containing many capillary vessels. The myocardial fibers were hypertrophied and showed patchy areas of marked degeneration and vacuolization of the muscle fibers. Fat stain showed that these areas were due to a marked fatty degeneration. There was also interstitial edema and some perivascular scarring but no Aschoff nodules, with only occasional Anitskow cells.

Anatomical Diagnosis: Old rheumatic heart disease involving mitral, aortic and tricuspid valves:—

Mitral stenosis and insufficiency.

Aortic stenosis and insufficiency.

Minimal scarring of tricuspid valve leaflets.

Marked hypertrophy and dilatation of all chambers of the heart.

Obliterative fibrous pericarditis.

Chronic passive congestion and edema of the lungs.

Hemorrhagic infarct, left lower lobe of the lung.

Cardiac cirrhosis of the liver.

Icterus.

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Chronic passive congestion of the spleen.

Ascites.

Moderate pitting edema of the feet and ankles.

Surgical absence of appendix with old fibrous peritoneal adhesions.

Shallow linear ulcers of the cecum.

Polyp of the transverse colon.

Fatty degeneration of the myocardium.

Fatty infiltration of the kidney tubules, moderate.

Case 3.—A. C., white male, age eight years when first seen at the rheumatic fever clinic on January 28, 1943, the patient was apparently in good health until one year ago when he contracted scarlet fever which was severe. The patient was kept in bed for one month. During the next month the patient developed polyarthritis and all the large joints and fingers became swollen and painful and hot. This was accompanied by a marked malaise and some dyspnea and edema; also rapid and forceful palpitation.

Four months after scarlet fever, the patient was brought to the Medical College of Virginia Hospital with a main complaint of loss of strength and shortness of breath. At this time the temperature was 101.2, pulse 140, and respiration 40. The patient appeared ill and toxic, the tonsils were enlarged and cryptic, the liver was enlarged and tender, the heart was markedly enlarged, the cardio-thoracic ratio was 75 per cent. There was a gallop rhythm. There was a high-pitched, blowing, somewhat musical systolic murmur heard over the entire precordium, loudest at the apex and transmitted to the axilla. The patient responded fairly well to digitalis and mercupurin. Digitalis was discontinued one and a half weeks after admission.

One week after admission, the patient developed a pericardial effusion which persisted for about five weeks. The patient's temperature continued around 101, and the patient was very sick and drowsy. He gradually improved, became very active in bed and was hard to control. Because of the anemia which developed, the patient was given two small transfusions. Two months after the seize of pericarditis, the patient had an attack of nausea and vomiting which lasted for two days.

For the next five months the patient developed no new complications. He was active and unruly in bed. The heart remained much enlarged and loud presystolic and diastolic apical murmurs were heard, transmitted to the axilla, the pulmonic area and somewhat to the back. During his stay, the sedimentation rate dropped from 34 mm. to 10 mm. and the electrocardiogram still showed evidence of partial heart block as well as tachycardia. The hemoglobin increased from 52 per cent to 82 per cent and the white count decreased from 11,500 to 6,500.

Eight months after admission, upon insistence of his mother, the patient was discharged from the hospital to the home and instructed to continue bed rest and report to the rheumatic fever clinic; however, the patient did not follow instructions properly.

This patient was seen about every three months following his discharge from the hospital and he continued to reveal evidence of low grade activity of the rheumatic process as indicated by an increase in the sedimentation rate and a slight elevation of pulse rate and a slight fever. He also continued to have nose bleeds from time to time and upper respiratory infections. The mother did not cooperate in the handling of this child and made no real attempt to continue the rest as ordered. About eight and a half months after the patient was discharged from the hospital he was re-admitted to the Medical College of Virginia Hospital. The history at this time indicated that about one week prior to admission, the patient had eaten a quantity of peanuts and other party food and had become very sick after this. Due to lack of cooperation of the family, the history was considered unreliable. On admission the patient was quite ill and showed a marked pallor, complained of listlessness and pain in his chest, nausea and vomiting. The temperature was 104, the pulse 120 and the respiration 30. The patient showed evidence of right and left cardiac failure. A pericardial friction rub was heard three days after admission. Some symptomatic relief was obtained by bed rest, but about one week after admission, the patient developed more severe dyspnea and then orthopnea. He was given a mercurial diuretic and over the period of the next five and a half days was given thirteen and a half grains of digitalis. At the end of this time, the patient complained of marked precordial pain, spat up blood and coughed a great deal and died. An autopsy was refused.

Our final diagnosis on this case was rheumatic fever, active. Cardiac enlargement, right- and left-

sided failure, mitral regurgitation and stenosis, probable rheumatic pancarditis.

Case 4.—W. S., colored, male, age ten, first seen at the rheumatic fever clinic on April 22, 1942. The patient's mother stated that he had no illnesses requiring bed rest. Two years ago he had frequent tonsillitis, pains in the calves of the legs, with questionable swelling of the joints of the leg. One year ago, the patient complained of easy fatigue, shortness of breath and had to stop sports at this time. Two weeks ago the patient jumped from a bank and sprained his ankle. He continued to have pain in his ankle and was taken to his family doctor who advised bed rest and sent the child in here for a check-over.

Physical Examination: The patient was fully developed, poorly nourished, height 54¾ inches, weight 65½ pounds, temperature 100, rectal. The tonsils were enlarged, cryptic and inflamed. The lungs were normal. The heart sounds were definitely overactive, rate 120. There was a slight systolic thrill in the second left intercostal space. There was a diffuse, beam-like pulsation in the third and fourth intercostal space near the apex. The aortic second sound was absent, while the pulmonic second sound was diminished. The pulmonic first sound was accentuated. There was a medium long, slightly rough systolic murmur heard in the second left intercostal space. There was a high pitched systolic and an early blowing diastolic murmur heard in the third and fourth left intercostal spaces. There was also a low pitched, rough systolic murmur heard at the apex and transmitted to the axilla, and there was a low pitched diastolic murmur, rumbling, localized at the apex. The heart was enlarged on physical examination and by x-ray studies.

The diagnosis at this time was rheumatic fever, active, with mitral regurgitation and stenosis, aortic regurgitation and possibly aortic stenosis; also cardiac enlargement, and active rheumatic myocarditis. The patient was admitted to the hospital and remained there for one month. The diagnosis on entrance was as noted above and was the same on discharge. During the patients stay in the hospital he ran a temperature from 98 to 100.2 and the pulse ranged from 80 to 120. The patient had no subjective complaints during his stay in the hospital. The murmurs remained about the same. About four days before his discharge the patient developed the typical rheumatic fever type of rash, erythema marginatum, and this persisted for several days. The patient was transferred from the Medical College of Virginia Hospital to the Convalescent Home on 5-23-42 and left the Convalescent Home on 8-5-44.

Progress Notes 8-5-44: While in the Convalescent Home this patient continued to show some evidence of activity of the rheumatic infection for the next several months and around the seventh month of his stay in the Convalescent Home he had a definite flareup of polyarthritis and also a skin rash, the latter lasting from seven to ten days. The sedimentation rate at this time was 28 mm. About three to four months later he began to show systematic improvement and this seemed to continue. The patient was discharged to his home on 8-5-44, that is, after about two and a quarter years in the hospital, and we thought, of course, there was no evidence of activity of the rheumatic process at that time. He was sent home on digitalis gr. 1½ daily.

This patient was followed along in the clinic, returning about every three months and there was no evidence of activity of his rheumatic fever and his cardiac status remained about at a standstill.

About eight months later the patient was readmitted to the hospital with multiple arthritis, temperature 101. He had dyspnea, pulse 120, respiration 28. Examination of the heart was essentially the same as before. The sedimentation rate was 23 mm., there was definite anemia, and the white count was 15,000. The patient continued to show evidence of activity of his rheumatic infection, and the hemoglobin dropped to 42. About two and a half months later the patient developed a sore throat, his dyspnea increased, his temperature went up to around 102, his pulse rate ranged from 130 to 140 and his respirations were around 50. The patient went steadily down hill and had right- and left-sided failure. He had pain in his hip and knees and despite complete rest and treatment, the patient died the fourth month after his admission to the hospital. No autopsy was obtained.

Case 5.—D. M., white male, age 8, first seen at the rheumatic fever clinic on December 2, 1942. The history of rheumatic fever dated to four years previously. The patient was seen by a pediatrician and was kept in bed for about a month at that time. The mother stated the child had apparently recovered and had no symptoms until about two months prior to admission to the clinic when she noticed

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that he began to get tired and listless and rather pale. About three weeks prior to admission he caught a cold during a wet spell and, following this, he had an acute illness with fever, cough and a nasal discharge. He then developed painful joints, particularly the knees and elbows and showed definite redness and swelling. The upper respiratory symptoms disappeared but the joint symptoms have remained. The father noticed that the patient was very short of breath at night.

Physical Examination: Height 49¾", weight 52½ pounds, pulse 122, temperature 100.2 rectal, respirations 26. The patient was poorly nourished, pale and listless. The tonsils were enlarged and diseased. The lungs were essentially negative. There was no pain or swelling of the joints noted. The heart was definitely enlarged, both by physical examination and roentgenological studies. The heart sounds were hyperactive and tick-tack in character. The pulmonic second sound and the first sound at the apex were both accentuated. There was a long, loud systolic murmur at the apex and transmitted to the axilla and to the back and to the left sternal border. There was a presystolic phase to this murmur and also a soft mid-diastolic murmur heard at the apex.

The sedimentation rate was 28 mm. The electrocardiogram showed evidence of myocardial damage.

Diagnosis: Active rheumatic fever with rheumatic heart disease, mitral regurgitation and stenosis, cardiac enlargement, secondary anemia. This patient was admitted to the hospital on 12-2-42 and remained in the hospital until 6-27-43 when he was discharged against the advice of the hospital, on the insistence of his father. Throughout the stay in the hospital, particularly the first two months, the patient had terrific nose bleeds and vomited blood clots. He received transfusions on several occasions. He had soreness in the back and in several of the large joints off and on. The sedimentation rate remained high. The hemoglobin fluctuated between 58 per cent and 78 per cent. The temperature fluctuated between 98 to 102, average of 100. Pulse from 90 to 130 with an average of 120. The heart remained enlarged and much overactive and the physical findings remained about the same. In the beginning of the fifth month, the patient had severe nose bleeds followed by nasal congestion, dyspnea, increase in pallor and sweating, with a temperature of 100 to 104, pulse 100 to 150, respirations 25 to 40. Following a transfusion, there was a reaction in which the temperature and respiration went very high. The electrocardiogram remained about the same, essentially within the limits of normal. The patient appeared to be in a "submarginal chorea" with gross twitching movements occasionally and picking movements of the hands. This seizure lasted four weeks and towards the end of that time, the patient was somewhat more comfortable. The temperature came down to 99 to 100, with the pulse still 120 to 140. At this time the parents demanded the discharge of the patient. We were not in contact with this patient after this, but there is a note stating that the patient died in the emergency room of the Medical College of Virginia Hospital on 8-23-43.

Case 6.—W. J., white male, first seen by me in his home in consultation with Dr. Philip Jones on May 19, 1944. This case history was quite interesting. The patient had been in good health until the present illness except that four or five years ago he had what was thought to be appendicits. He was not operated on at this time, and soon after he had another spell in which he had a high fever. One doctor thought it appendicitis and advised operation; however, the patient was seen by another doctor who diagnosed acute tonsillitis and was of the opinion that this caused the increase in temperature.

The patient was in good health after this until just about one month prior to the time we saw him. At this time, he had an acute illness and had quite a high fever; he was given some empirin compound and got along so nicely that he was allowed to go out and play. Within a few days he came in and complained of pain in his right knee. He soon had a temperature of 103 degrees, and was given one of the sulfonamides, but the medicine had no effect on his temperature. The pain migrated from his right knee to his arm and then his leg and he had acute joints at this time. He later had pain in his left leg. The patient was then taken to Grace Hospital where he remained for eleven days. The joint symptoms lasted from four to five days. While in the hospital the patient had an erythematous rash and it was felt he did have rheumatic fever. After staying in the hospital eleven days, the patient was taken home and he got along fairly well, but his respiration was not good after he got there and he had some nausea and vomiting.

It was interesting to note that the patient's cousin who slept in the room with him had a sore throat

about one week before the onset of the patient's present illness. The cousin got over his attack without difficulty, but the patient came down with the present illness following his sore throat.

Physical examination: The patient was a white boy, age ten years, lying in bed and very sick. He appeared definitely toxic and appeared anemic and his complexion was quite sallow. He had some dyspnea, but no definite orthopnea. He appeared to have lost weight. His throat was slightly red but not acutely inflamed. The tonsils had been cleanly removed. There was questionable increased pressure of the cervical veins.

Chest: Respiration was definitely increased. Breathing seemed somewhat labored. Lungs: There was definite dullness on percussion from the angle of the scapula to the base on the left with slight dullness at the extreme right base. On the left in this area, the breath sounds were increased and somewhat high pitched. No definite rales were heard and no friction rubs were heard.

Heart: The heart was markedly enlarged. The left border dullness was 11 cm. in the fifth interspace. The right border dullness was 4 cm. in the fourth interspace, the maximum apex impulse was 11 cm. to the left of the midsternal line and the mid-clavicular line was 6 cm. The rhythm was regular and the rate was elevated, being 104. Heard best at the apex, but transmitted to the axilla, was a long, high pitched, somewhat musical systolic murmur. There was also a definite mid-diastolic murmur which was lower pitched and rather rumbling in character and limited to the apex region. There was a systolic murmur heard at the base of the heart and in the third and fourth interspaces just to the left of the sternum there was a slight, high pitched, early blowing diastolic murmur. There was also a questionable to-and-fro pericardial friction rub, and I could not be sure that, at that time, this was an extra cardiac and not the to-and-fro murmur from the aortic area. The pulmonic second sound was markedly accentuated and greater than the aortic second sound which could scarcely be heard.

Abdomen: There was slight tenderness over the liver region. I thought that the liver percussed somewhat enlarged, but I could not feel the edge. The spleen was not palpable and there was no ascites.

Extremities: No petechiae were seen. There was no edema. There was no definite cyanosis. There was no enlargement of the joints, nor pain on motion, and there did not seem to be any tenderness on pressure. No rheumatic nodules were seen. There was no rash at this time. The temperature was 101.

This patient showed a marked hypochromic anemia. The sedimentation rate was 29 mm. The electrocardiogram showed a first degree heart block and other findings indicative of an active rheumatic myocarditis. The patient did not improve and was admitted to the Grace Hospital about one week after we first saw him. The patient was acutely ill, his temperature ranged from 100 to 103, pulse 100 to 120 and at times 150. His respirations ranged from 22 to 69. The patient's congestive failure became worse, he developed a definite pericardial rub and a pericardial effusion and died fifteen days after admission. Autopsy was refused.

This patient was treated for congestive failure with a xanthine, mercurial-xanthine diuretic, and digitalis, but, although his congestive failure seemed to improve from a mechanical standpoint, the patient died.

Case 7.—H. D. S., white male, age 7, first seen at the rheumatic fever clinic on April 1, 1942. In midwinter at seven years, the patient developed fever, anorexia and had shooting pains from the left knee to the hip joint. Multiple other large joints were involved in migratory fashion with limitation of motion and pain. The attending physician gave him sulfanilamide without relief. The patient was admitted to the hospital four days after the onset with a white blood count of 22,000, with 82 polys; the sedimentation rate was elevated, the temperature was 103 to 104, pulse 136, respiration 32. The examination of the lungs revealed a dullness in the right upper lobe. The abdomen was tender and there was a tenderness on motion of several large joints. A few small petechiáe over the body were noted. The heart was slightly enlarged. The next day following admission a pericardial friction rub was heard and a day later an apical systolic murmur was noted.

The patient gradually improved. Four blood cultures were negative and one month later he was pale and tired but did not complain. Electrocardiographic findings revealed a slight diphasic T in leads one and two. He was discharged—to continue bed rest at home.

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Two months later in the spring he was seen in the rheumatic fever clinic. The tonsils were enlarged. The heart was normal, and the cardiothoracic ratio was normal, but there was a slight relative fullness in the region of the left ventricle and pulmonary area. The heart sounds were normal, the rate was 100 and there were no murmurs. The electrocardiogram revealed a slightly diphasic T wave. The sedimentation rate was 11 mm., and the white cell count 7,200.

The patient made steady subjective progress and gained weight until two months later, in the early summer, when he was seen and his heart appeared larger and there was a faint apical systolic murmur heard when the patient was in the prone position. Two months later in the midsummer he had a sore throat, upper respiratory infection with fever, and one month later, in the fall, he had a sedimentation rate of 21 mm., no murmurs, and was still gaining weight.

Two months later in the fall, he had a sore throat, tachycardia, fever of 103 to 104, four plus multiple joints, dyspnea, and was extremely ill. He had a cardio-thoracic ratio of 66 per cent, a friction rub and pseudo-gallop rhythm. Two weeks later the friction rub was gone, and the cardio-thoracic ratio was 54 per cent. He continued to improve, but the heart remained a little enlarged and the short systolic murmur was still present. Four months later he had a sore throat and fever, but with no further complications. The patient continued to run a low-grade intermittent fever with occasional peaks to 103, pulse 135 to 90 and respirations 40 to 20. The pallor persisted. Two months later in the spring and while still on bed rest, he developed typical erythema marginatum with a duration of two weeks. The sedimentation rate was 28 mm.

Following this he continued to improve until the winter when he was nine years old; he was gaining weight, his heart gradually decreased in size to 45 per cent cardio-thoracic ratio, and no murmurs. The sedimentation rate was 8 mm.

In the summer at nine years of age, he had a tonsillectomy after having been established on prophylactic sulfanilamide.

This patient has been seen in the clinic every three to four months since that time and was last seen on February 13, 1946, at which time he seemed to be doing very nicely. He had only three colds since his previous visit and gave no history suggestive of activity of his rheumatic manifestations. He had gained two and a half pounds, his temperature, blood pressure, and pulse rate were all normal and the sedimentation rate was normal.

On physical examination the patient's heart was not enlarged; a marked sinus arrhythmia with an extra systole was present. The sounds at the apex were distant and no murmurs were heard. The diagnosis was inactive rheumatic fever with possible and potential heart disease. We believe this patient did have a pancarditis in the beginning.

Case 8.—W. A. B., white male, age 8, first seen at the rheumatic fever clinic in June, 1940. Past History: The patient was said to have had frequent attacks of tonsillitis, first noted at the age of two years. The tonsils were removed at six years, about one year after the first attack of arthritis. Muscular or growing pains were present off and on from five through eight years.

At five years, in the winter, he had severe attacks of polyarthritis, duration three months. He was not seen in this clinic then.

At six years, the hospital record states that he was in the hospital following concussion of the brain due to trauma. The surgical interne recorded the heart as negative.

At seven years of age, in the spring, he had a severe attack of polyarthritis, involving his knees, wrists, hands and shoulders, which lasted three months.

At eight years of age, in the early summer, he was seen in the rheumatic fever clinic, when his parents wanted permission to send him to camp. His general nutrition seemed good and his general mentality average, though the patient was apprehensive, fearful and despondent. There was lymphoid tissue present in the throat and he had seven carious teeth. The cardiothoracic ratio was 47 percent. There was an apical systolic murmur suggesting mitral regurgitation. He was seen again three months later. He had not attended camp. The dentist had been unable to fix his teeth because of lack of cooperation on the part of the patient. No further symptoms had developed.

At the age of eight years, in the fall (four months after his initial visit to the clinic), the patient was admitted to the hospital with a history of pain in his hips of several days' duration and difficulty in moving his legs; also there were afternoon fever and profuse night sweats. The heart murmur was

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typical of mitral regurgitation and a third sound was also present.

The patient remained in the hospital for two months and during this time he developed pericarditis with effusion, moderate left- and right-sided failure, with which he was desperately ill; he also had transient migratory joint pains. At the end of two months, although still rather ill, he was transferred to the convalescent home because of marked behavior problems and intense protests against his present environment. He remained in the convalescent home seven months where he continued to show active rheumatic infection, including a recurrent maculo-papular rash, an aching of the hands and feet and occasional sore throat. There were rheumatic nodules over the scalp and around the elbows. One month after admission (three months after the onset), the patient was discharged to his home, at which time his heart was moderately enlarged, and typical systolic and a definite diastolic murmur at the apex were present. He had gained weight, his color and appetite had improved, and his physical strength had increased.

The diagnosis at the time was active rheumatic fever, subsiding; mitral regurgitation and beginning stenosis; constitutional psychopath. Repeated attempts were made to obtain psychiatric aid for this child and family.

Progress Notes 4-8-43: At eleven years the patient had colds and an infected throat with accelerated sedimentation rate, which remained only a short while. About this time he was transferred to a class for problem children.

5-11-44: At twelve years of age, in the fall, he had a fever and a cold, with a sedimentation rate of 21 mm. He had bad teeth which he refused to have fixed. At thirteen years, in the spring, he developed difficulty on rising and could not straighten up or straighten his hands out. He had pains in his chest and respiratory difficulty. His heart was essentially the same. The sedimentation rate was 17 mm. The pulse rate was 82, repiration 20. In the clinic, he continued to be a marked behavior problem. In the late spring at thirteen years, and two months after the onset of this stiffness, etc., he developed redness and swelling of the right foot which he said he injured. The sedimentation rate was 18 mm. Pulse 74, respiration 20. The physical examination was essentially the same. There was a tenderness over the right arch. The electrocardiogram was within the limits of normal.

The patient had a further recurrence of his rheumatic process about four months after he was discharged from the convalescent home and was admitted to the Medical College of Virginia Hospital and remained there about one month.

We last saw this patient on April 29, 1945, about six months after he was last hospitalized and at this time he stated he was feeling all right. On physical examination his general appearance was good. His heart was not definitely enlarged, there was a definite systolic murmur heard at the apex and a probable mid-diastolic. There were no joint pains. Our diagnosis at this time was rheumatic heart disease, rheumatic fever subsiding or inactive, mitral regurgitation and possible stenosis developing.

Case 9.—White male (H. U.), age 16, first seen in consultation with Dr. J. J. Hulcher at the Grace Hospital on 6-24-44. The patient was in good health except that about three months prior to admission, he had a so-called streptococcic throat infection from which he had apparently recovered.

Two weeks before admission the patient first noted severe pain and weakness in his knees and this later developed into typical acute migratory polyarthritis. He had some generalized abdominal pain, but no tenderness and nose bleeds. He also had some dyspnea.

On physical examination at admission, the patient showed evidence of painful and swollen joints. There was no evidence of failure at this time.

Heart: The heart rate was rapid, ranging from 100 to 120, and the sounds were over-active. There was a loud, harsh systolic murmur localized at the apex.

Two days later, the patient developed a pericardial friction rub and then developed a pericardial effusion. X-ray studies revealed an enlargement of the heart with probable pericardial effusion. The sedimentation rate on admission was 28 and gradually improved to 11 mm. on discharge.

The white count was 9,600, with 78 per cent polys.

This patient remained in the hospital for ninety-three days. He developed congestive failure, severe anemia, and was very ill for about the first two months of his stay, after which he gradually began to improve. We treated his congestive failure with digitalis and mercupurin as well as the xanthine

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derivatives from time to time. The patient was discharged home on complete bed rest.

The patient remained in bed for two months, and was then gradually up, and came in for a check-up about seven months after leaving the hospital, at which time he stated he had not had any dyspnea or chest pain. He had some nose bleeds but no joint pains except in his right ankle from time to time. At this time his pulse was 120, the heart was not enlarged and there was no evidence of congestive failure; there was a blowing, rather soft, fairly long systolic murmur heard best at the apex and transmitted to the axilla.

The laboratory reports were normal. Roentgenological studies of the heart were normal. The following is quoted from the notes on the patient at that time: "I think this patient has made a remarkable recovery. Of course, I think he has chronic rheumatic heart disease with mitral regurgitation; however, I do not believe I have ever seen a patient make a more beautiful recovery from so severe an attack of rheumatic fever. I think the patient had a definite rheumatic pancarditis during his acute illness, but, at the present time, the only real residium that is demonstrable is the slight mitral regurgitation." We have followed this patient along since then and he has not had any evidence of return of his rheumatic infection. He was last seen about four months ago and the heart was normal in size and the only remaining physical sign left indicating that the patient had previously had a pancarditis, was a slight systolic murmur at the apex and transmitted to the axilla, and, more important, in the recumbent position, the systolic murmur in the latter phase had a definite squeaking sound which we believe is almost pathognomonic of a previous pericarditis.

We have presented the above cases not in any attempt at statistical analysis, but in an attempt to try to show in general the picture which we see in fatal or near fatal cases of rheumatic fever, hoping thereby to impress upon all of us the seriousness of the disease. Of the six fatal cases, all died between ages of nine and fifteen years. The cases dying at fourteen to fifteen years of age had recurrent rheumatic fever frequently for six or seven years before death. One case had no real rest; the other was under our care for a long while. Case four died at thirteen and a quarter years, and had a questionable rheumatic fever at eight years of age; we saw him at ten years of age while in an acute attack of rheumatic fever. The patient was in the hospital for two and a half years, was discharged inactive, and died one year later with a recurrent attack of acute rheumatic fever. Of the three cases dying between nine and ten years of age, two cases had rheumatic fever with apparent recovery four years before the final fatal illness. In one of these two, the patient died about one and three-quarter years after recurrence, having been in the hospital for a year and a half. The other case died about six weeks after the onset of recurrent rheumatic fever. Case three had scarlet fever one year prior to death, then active rheumatic fever until death.

We presented three cases which we thought without doubt had severe pancarditis with rheumatic fever but who recovered. The first of these had several attacks of rheumatic fever, one being a very severe attack associated with pancarditis for which he was hospitalized for months. Due to the patient's psychopathic personality, we have not been able to follow him very closely, but on the last visit he had no definite cardiac enlargement, though there were murmurs indicating mitral stenosis and a previous pericarditis. The second of these we saw at seven years of age in an acute attack and he was admitted to the hospital at once and kept in the hospital and convalescent home for one and three-quarters years. He was last seen several months ago with a final diagnosis of past rheumatic fever and pancarditis, now inactive, and possible potential rheumatic heart disease. The final case was seen in his initial attack of rheumatic fever and pancarditis and was kept in the hospital for ninety-three days. He now shows no heart enlargement and only probable mitral regurgitation.

We have purposely presented severe cases showing little or no response to therapy. However, we do wish to emphasize again that we believe bed rest until a month or so after all evidence of activity is absent is absolutely imperative, be this months or years. We would like to mention also the advisability of high caloric, high vitamin diets, particularly vitamin C, iron as needed, and salicylates symptomatically. Furthermore, we urge constant watchfulness for early heart failure and the prompt and proper use of digitalis, along with xanthine and mercurial diuretics to combat this. We have found no place either for penicillin, sulfonamides or intravenous salicylates in the treatment of the acute

phases of this disease. We still look hopefully into the not too distant future where we shall have proper sanatoria for the care of the case of active rheumatic fever just as we now have for the care of tuberculosis.

DISCUSSION

DR. SAMUEL A. ANDERSON, JR., Richmond: First, I want to congratulate Dr. Camp on his very forceful presentation. Those of us who are in general practice or even the practice of pediatrics rarely have occasion to see such severe cases and have them under our immediate care; and his reminder that this is a very serious disease in enough instances to cause death in six children in the last four or five years, under his observation, is a very timely one. Because of this failure to see many serious cases in one's practice, I know I, and I believe many others of us, are likely to forget that the disease may be dangerous.

The lay public has had a considerable amount of education with regard to this disease in recent years. The Metropolitan Life Insurance Company has had, I think, some very tactfully worded and illustrated ads. Frequently I feel I am getting behind the lay public in being on the alert for early symptoms of rheumatic fever. I know Dr. Camp's paper emphasizes the severity of the disease. I cannot add to that. He has demonstrated it most forcefully. But from the point of view of the pediatrician, I wanted to emphasize the fact that in the rush and hurry of recent years I think I, and I expect others, have been likely to overlook some of what might be called the prodromal or insidious symptoms of this disease. Very frequently people whom I expect have read this published matter will call and ask what I think of a child's having nose-bleed or having abdominal pain, or they will say that a child usually of a sunny, happy disposition is cranky and does not get along with his playmates and comes in earlier and wants to rest earlier than he used to rest. Of course, vague leg pains cause one to suspect it. It is a long and tedious process to reassure people and tide them along until a diagnosis can be made. I was impressed by the fact that in this group of patients to whom Dr. Camp referred I think in about three hundred the diagnosis was deferred. We have to make a deferred diagnosis too often, and we have a problem on our hands in telling people what the status is at any one time. It is a difficult problem. These symptoms of leg pains, etc., can mean rheumatic fever. Frequently they do not, but we ought to remember that they may.

The Metropolitan Life Insurance Company has a booklet which I have seen, which has been compiled by authorities in this field. It is available for distribution to physicians only, and I think it would be well worth our while to procure one of these and refresh our minds as to these early signs, which I think are frequently brushed aside. There may be some additional information which would bring us more nearly up to date.

If there is anything in Dr. Camp's final sentence other than wishful thinking, I should like to urge all of us to think along that line. From the point of view of those of us dealing with children the problem of the care of rheumatic-fever patients, in the convalescent stage particularly, is a very real one. The child gets better, has no more leg pains, and has no shortness of breath while at rest. Amusement is limited in the home; and he becomes pampered, becomes cranky, and presents a very real problem in that home. If the disease could be looked upon very much as tuberculosis is looked upon, then convalescent homes could be established; and the children in those homes would be treated for the same thing; they would have companionship, would have schooling, would have proper rest and supervision. Then the emphasis which Dr. Camp put upon adequate bed rest, whether it be for months or years, would not be so difficult to enforce. If the members of the Medical Society of Virginia would think about such homes, scattered about in their local communities, it would be a tremendous contribution to the care of this disease.

DR. WALTER B. MARTIN, Norfolk: I, too, want to thank Dr. Camp for bringing to the attention of this Society a very important matter. It is rather interesting to note how much public attention has been paid to infantile paralysis as compared to heart disease resulting from rheumatic fever. Poliomyelitis has crippled its thousands, but rheumatic fever has crippled its tens of thousands. The amount of money contributed by the public, however, is tremendously disproportionate. This can be explained by the fact that the manifestations of poliomyelitis are before the eye; they are dramatic in character whereas the public does not realize the extent to which rheumatic fever can be crippling.

Dr. Camp has laid emphasis on the severe cases resulting in crippling and death. I think it is well also to emphasize the other side. Cases that are clinically relatively mild, with few joint manifestations, may be associated with severe cardiac changes, and, unless we are on the alert, cardiac complications may be missed entirely. I am quite sure that in the last twenty years we have missed many of such cases in their acute state. I have arrived at this conclusion from comparison of the number of cases of acute rheumatic fever that I have seen, and the number of cases of chronic rheumatic endocarditis observed. In taking the record of cases of chronic rheumatic endocarditis, often they gave no history of acute rheumatic fever, nor had rheumatic endocarditis been diagnosed in its active stage.

I would like to emphasize what was brought out in one of Dr. Camp's case records, that the onset of acute rheumatic fever may be associated with acute abdominal pain. I recall three such cases. In one of them a diagnosis of acute appendicitis was made and a normal appendix was removed. It is worth noting that the primary attack may occur in adult life, and even in late adult life. This was noted in the military service. I

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had one case, a woman of sixty-five, apparently in her primary attack.

The epidemic character of the disease has been noted from time to time. One of the best known of these occurred at Camp Carson during the war. This epidemic persisted over a considerable length of time, and was finally brought in check by the prophylactic use of sulfadiazine.

Some comment might be made in reference to drug therapy. While there is no particular harm in the use of penicillin, apparently it is entirely useless. There is evidence, on the other hand, that the use of sulfa compounds is definitely harmful in the treatment of rheumatic fever. Dr. Camp has mentioned the question of intravenous salicylates. Following Cofield's report, considerable interest was manifested in the giving of massive doses of sodium salicylate, both by mouth and intravenously. It was suggested by Cofield that the maintenance of a high salicylate blood level, around 300 gamma would decrease the incidence of cardiac involvement. This has not been confirmed by other workers. On the other hand, the use of intravenous salicylates may be associated with unfavorable and disturbing reactions. Large doses of salicylate by mouth, enough to control the symptoms, is justified, but salicylates should be used intravenously with considerable caution.

The question of when to get these patients out of bed is a matter of considerable importance, since harm can be done by too prolonged bed rest, not made necessary by the heart condition. Observation of the pulse rate, temperature, leucocyte count, sedimentation rate, and electrocardiographic tracing, are all helpful in reaching this decision. They should be gotten up on a graduated schedule, under careful observation of the reaction of these factors.

I want to thank Dr. Camp again for bringing this important subject to our attention. It is a matter that should be on the hearts and minds of all physicians in the State. It is a matter of public concern, because, unfortunately, most of the cases occur in the lower income groups, and often the parents of these children are unable to care for them over a long period of time. We should be prepared to urge and support the establishment of special departments and institutions for the proper care of this important group of cases.

DR. CAMP, closing the discussion: I have nothing further to say except that I had brought up the more insidious factors of this disease in another paper, and I thought in this one I would present some of the more dramatic ones, in order to impress it upon us all.

Pulmonary Tuberculosis.

"Pulmonary tuberculosis is one of the chief causes of death among young people between the ages of 15 and 35," according to Ralph E. Dwork, M.D., of Denver, Colo., writing in the current issue of *Hygeia,* health magazine of the American Medical Association.

Dr. Dwork, senior resident physician at the National Jewish Hospital at Denver, states that "in recent years large numbers of previously undisclosed cases of pulmonary tuberculosis have come to light as a result of the numerous mass x-ray surveys that have been made by the armed forces and the Public Health Service in ccoperation with industry and local and state health departments. Now there is a growing tendency to assume that early tuberculosis does not have symptoms and can be found only by x-rays; the assumption is misleading."

The x-ray, he points out, is the best instrument for finding early cases of tuberculosis. "Until it is economically possible to examine the whole population periodically by x-rays," Dr. Dwork writes, "it would be foolhardy to neglect symptoms or combinations of symptoms that point to a diagnosis of pulmonary tuberculosis. Many people are found to have the disease who think they are not sick; the symptoms of early tuberculosis are not startling and are easily dismissed. People neglect these symptoms, or rationalize them away, or attribute them to totally unrelated causes."

Pointing out that pulmonary tuberculosis develops without noticeable symptoms in only one fifth or less of all who are found to have x-ray lesions, the author lists the most common symptoms as cough, expectoration, loss of weight, chest pain, weakness, fever, hemorrhage, night sweats, streaking, breathlessness, loss of appetite, chills, hoarseness, irritability, generalized aches and pains, headaches and insomnia.

USE OF PYRIBENZAMINE IN ERYTHEMA NODOSUM*

CARL P. PARKER, JR., M.D.,
JAMES L. CHITWOOD, M.D.,
and
H. ST. GEORGE TUCKER, JR., M.D.,
Veterans Administration Hospital,
Richmond, Virginia.

So far as we know, the use of the new antihistaminic drugs in the treatment of the erythematous diseases has not been reported. Apparently favorable results have been obtained by us with pyribenzamine in two cases of erythema nodosum. As a suggestion for further investigation, two brief case histories are presented.

CASE I

G. S., a 39 year old white male, had had painful reddened nodules over both lower extremities recurring at intervals for eight months, made worse by being on his feet.

Physical examination revealed a robust male with tender reddened nodules over both legs and thighs. Blood pressure was 110/70. Serology was negative. R.B.C. and hemoglobin were normal; W.B.C. varied from 8,750 to 11,400. Three differential counts were normal with eosinophils varying from 1 to 6 per cent. Urinalysis was normal except for a faint trace of albumin and occasional hyaline casts in one specimen. Chest x-ray was normal. Biopsy of one of the nodules was done and the section showed diffuse thickening of the walls of the small blood vessels in the subcutaneous tissue with marked edema of all layers and round cell infiltration most marked in the adventitia. In some cases, the exudate went beyond the adventitia and extended into the periarterial tissue forming a sharply demarcated perivascular focus. Endothelial hyperplasia was present in several arterioles.

Patient was treated with bed rest but several new nodules appeared. Patient was given pyribenzamine, 50 mgm., four times a day, and the redness and tenderness had disappeared completely four days later. Pyribenzamine was given for thirteen days and there was no recurrence of nodules nor in eleven days' observation after the drug was discontinued, although patient was allowed up during this time.

CASE II

M. H., a 31 year old white male, was admitted to the hospital because of nodular swelling over the anterior surface of both legs. Onset of symptoms was twenty days prior to admission with soreness and stiffness of the hips. A few days later, there was soreness in the flexor muscles and tendons of the thigh. Twelve days before admission, he developed reddened nodular areas on the dorsal surfaces of the lower tibiae. On admission, there were multiple, indurated, violaceous, circumscribed subcutaneous nodules over the anterior and lateral surface of both legs, from the knee to the ankle.

Urinalysis was normal. Complete blood count was normal. Sedimentation rate was 10 mm. per hour. Chest x-ray showed large oval shadows in both hilar areas. Coccidiodin and Tuberculin skin tests were negative. Blood Kahn was negative. Sputum examination was negative for acid fast bacilli.

The patient was kept in bed. Two days after admission and fourteen days after development of the first nodule, pyribenzamine, 50 mgm., t.i.d., was begun. Five days after pyribenzamine therapy was started, the redness of the nodules had faded and tenderness had disappeared. Ten days later, the redness had entirely disappeared but there were some indurated, subcutaneous areas present. Patient was allowed out of bed and the pyribenzamine continued until the twenty-fifth day without a recurrence of the skin lesions. The hilar nodes remained the same on x-ray examination. Sedimentation rate at time of discharge was 18 mm. per hour.

COMMENT

Both patients presented skin lesions which appeared to be erythema nodosum. In one, the biopsy specimen was reported as compatible with periarteritis nodosa, but there was no other clinical or labo-

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ratory evidence of periarteritis except for the skin lesions. In both patients, the lesions disappeared rapidly when pyribenzamine was given. In our experience, such rapid improvement has not been seen with bed rest alone or with other forms of therapy.

No conclusions are drawn but our results warrant further investigation and reports on the use of antihistamine drugs in the treatment of the erythematous and vascular diseases of the so-called "sensitivity" type.

Surgery, X-rays Aid in Cancer.

Two physicians discuss the benefits of surgery and x-ray in the treatment of cancer of the lung and of the larynx, the voice organ, in the May 10 issue of *The Journal of the American Medical Association.*

John C. Jones, M.D., Assistant Professor of Surgery, College of Medical Evangelists, Los Angeles, states that postmortem examinations show that cancer of the lung contributes 10 per cent of all adult male cancers and is second only to cancer of the stomach; therefore it is necessary to diagnose the disease earlier if a successful surgical cure is to be secured.

Between 80 to 90 per cent of patients complain of cough as the earliest symptom. Dr. Jones lists pain as the second most common symptom, then spitting of blood, loss of weight, wheezing, labored breathing, clubbing of the fingers and toes and hoarseness.

X-ray, states the author, "is the greatest single diagnostic aid at our disposal. . . . Bronschoscopy [inspection of the interior of the bronchi] is the next most important diagnostic aid and is the easiest and most accurate method of early diagnosis."

Treatment requires removal of one entire lung. Dr. Jones says x-ray treatment at best offers only relief for those patients who are inoperable.

In the past four years, Dr. Jones points out, 209 cases of cancer of the lung have been seen and diagnosed. Of these patients, 52 underwent surgery, being in the operable stage. Two patients died in the hospital and 11 died later. Thirty-nine patients remain alive, and a number of these will probably die of recurrence or spread of the disease.

Maurice Lenz, M.D., Professor of Clinical Radiology, Columbia University College of Physicians and Surgeons, New York, states that of 110 patients who received x-ray treatment for cancer of the larynx at the Presbyterian Hospital between 1931 and 1941, 30 were free from clinical evidence of cancer between five and 14 years. Of these, 23 patients are still alive.

Dr. Lenz points out that x-ray treatment is the method of choice for early cancer of the vocal cords but when the cancer spreads then laryngectomy is necessary. This operation requires the removal of the larynx.

A. M. A. News Briefs.

The American Medical Association has published a list of acceptable medical schools annually since 1910.

A permanent record of all licenses issued by state medical examining boards is kept by the American Medical Association.

The Bureau of Medical Economic Research reports that approximately three-fourths of the 200,000 physicians in the United States are engaged in active practice.

More than 250 delegates, representing 40 medical societies and 28 colleges, founded the American Medical Association in the hall of the Academy of Natural Sciences in Philadelphia on May 5, 1847.

One of the objectives of the Council on Foods and Nutrition of the American Medical Association is to promote improvements in the quality of foods through the application of scientific knowledge to the problems of the food industry.

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SOME INTERESTING FEATURES OF ENDOCRINE AND METABOLIC DISTURBANCES, WITH SPECIAL REFERENCE TO THE SKIN

WILLIAM S. SLOAN, M.D.,
Petersburg, Virginia.

For many years, the fact has been recognized that skin disorders frequently reflect an underlying metabolic condition or disturbance. During World War II, many men were rejected for dermatologic conditions: atopic dermatitis, severe acnes and psoriasis, lupus vulgaris and lupus erythematosus were definitely among the causes for rejection, but others included epidemolysis bullosa, dermatitis, herpetiformis, and any disfiguring or odorous disease, which, while in itself not serious, led to rejection because of the morale factors.

There is a physiological basis for this. The skin is the largest, and one of the most vital organs of the entire body. Like the liver, the skin can repair itself to a certain point; but when too much of its surface is destroyed, as in the case of extensive burns, for example, life is impossible.

In many disturbances of the endocrine glands, there is often an obscure interrelationship of more than one gland—the so-called "pluri-glandular syndrome". The skin and its accessory structures often partake of the general systemic disturbances; in fact, the first signs of the underlying disorder frequently become apparent on examination of the skin.

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In this condition there is a dryness and scaling of the skin with puffiness of the entire surface of the body which becomes noticeable first of all about the loose skin of the eyelids and face, producing the so-called "moon-faced" appearance. Secretion of fat and sweat is diminished, the hair becomes coarse and is often lost, and an urticarial eruption may appear. There is a tendency sometimes for excessive amounts of fat to be deposited. Chemical changes in the subcutaneous tissue suggest an excessive deposit of mucin.

Though not mentioned in many textbooks, one of the best diagnostic findings is the sluggish phase of relaxation, best seen in the Achilles' tendon after a reflex has been elicited. (Have patient on his knees. Relaxation is slow and prolonged on the return stroke).

*Read before the Fourth District and Southside Virginia Medical Society, at South Hill, Va., August 27, 1946.

HYPERTHYROIDISM

The peculiar color of the skin, a disturbance of pigmentation most aptly described as that of a "fading sunburn" needs emphasis. Because of the excessive heat and moisture, the skin is soft and thin, "smooth as velvet", atrophic, and dermographism and urticaria are common.

A greater amount of the matrix of the nails becomes visible. The nails may be brittle and the hair becomes sparse.

DISTURBANCES OF THE PITUITARY AND SUPRARENAI GLANDS

Albright, Kepler and others have shown that tumors of the adrenal cortex often produce a syndrome, the nature of which is such that disturbances of pituitary and suprarenal may well be discussed together. Cushing's syndrome [hypertension, purplish striae, "plethoric" obesity (thin skin; but these patients appear plethoric because blood vessels are easily seen), hirsutism, altered habitus, and suddenly appearing acne], all except hypertension are features apparent on inspection of the skin alone, making one suspicious of a disturbance associated with suprarenal cortex or pituitary.

In *Addison's Disease,* hyperpigmentation of the skin is the rule, the skin assuming a soft, smooth texture. The cardinal symptoms are asthenia and a gradual decline in general weight and strength associated with a uniformly low value for the systolic blood pressure and, in most instances, a generalized pigmentation of the skin which is especially pronounced in the folds of the body, the axillae, and in the genital and perianal regions. As stated, the skin assumes a soft, smooth texture. Here, of course, the inability of the tissues to retain fluid associated with the disturbance of sodium metabolism (the so-called, "salt and water" effect), robs the skin while depleting the entire body.

(Hemachromatosis is another disorder of pigmentation. It is characterized by diffuse bronzing of the skin, from which it gets the name "bronze diabetes", because there is usually an associated diabetes or some obscure disorder of the liver such as cirrhosis.)

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DISTURBANCES OF THE PANCREAS

The affections of the skin which occur in diabetes mellitus are three: furunculosis, pruritus, and xanthomatosis, and the first two of these are probably directly attributable to the increase in the concentration of sugar in the skin.

There are also at least three problems, or questions, which intrigue every internist:

1. What are the causes of diabetic neuritis; specifically, why does it occur in well-controlled cases of diabetes almost as frequently as in uncontrolled diabetics? Joslin recommends: (a) Control of diabetes; (b) Saying prayers daily.
2. Diabetic retinitis: Why do we see extremely severe retinitis in controlled diabetes, while many cases of constant glycosuria have no appreciable retinitis?
3. Why do patients following complete pancreatectomy (as, for example, in carcinoma of pancreas), so-called "Whipple operation"—require only 30-40 units of insulin daily to control their "surgical" diabetes, while many diabetics require 3-4 times that amount? (Factor R-resistance to insulin)?

To these may be added the more general metabolic "puzzlers".

1. Why does psoriasis sometimes disappear entirely during pregnancy, only to reappear in exaggerated form within a short time after parturition?
2. Why does rheumatoid arthritis show remission with either pregnancy or jaundice?

The fact that many patients with gout show a diabetic glucose tolerance curve is throwing new light on this metabolic disorder. On the other hand, uric acid metabolism may be a clue in the chemistry of psoriasis, according to some recent experimental evidence.

One of the most interesting bits of work that promises to throw more light on the understanding of the skin is that of Lobitz at Mayo Clinic on the chemistry of sweat. These six papers, accepted but not yet published, will appear in the *Archives of Dermatology and Syphilology*. In these experiments, palmar sweat is studied as secreted (i.e., without contamination). To quote (from a personal communication this month): "We found that, regardless of whether the sweat was coming out of the sweat gland profusely or in intermittent bursts, it was an effective barrier to not only glucose but all reducing substances in normal individuals. This is a pretty good trick on the part of the skin and keeps sugar from lying around as a nice culture medium on the skin surface. In other words, by our technic, sugar was, in most instances, negative and never higher than about 10 mg. per cent when the blood sugar was normal. We raised the blood sugar to around 125 mg. per cent with oral glucose and still there was no spilling in the sweat. We then gave the glucose intravenously as intravenous glucose tolerance test and pushed the blood sugar up over 280 mg. per cent, but the sweat gland maintained its barrier. These were acute experiments so we finally were able to study two uncontrolled diabetics whose blood sugar had been elevated over 250 for at least several months that we knew of and again they showed no sugar in the sweat.

"Other things that we found out were that the sweat urea always remains about 20 mg. above the blood urea, and when we fed urea by the mouth we raised the blood urea to even as high as 350 without any clinical signs and the sweat urea remained above the blood urea and rose and fell with it. We were able to raise sweat creatine by feeding creatine by mouth, but the values were rather low. We were able to raise the blood uric acid by intravenous lithium urate to as high as 6 to 9 mg. per cent (no clinical signs appeared), and found that although the sweat uric acid rose and fell with the blood the sweat gland is about as reluctant to excrete uric acid as is the kidney. It is also interesting but not pertinent that the sweat gland can manufacture ammonia almost as efficiently as the kidney and does a better job when working intermittently than when sweating continuously. Why the sweat gland does this is pure speculation."

Since the sweat gland is comparable to the glomerulus of the kidney in many respects, some valuable contribution to metabolic diseases, as well as to dermatology, may well be made by this investigation of the chemistry of (uncontaminated) sweat.

Medical Arts Building.

THE TREATMENT OF SYPHILIS*

RAYMOND KIMBROUGH, M.D.,
Richmond, Virginia.

Approximately four years have elapsed since Mahoney and co-workers treated four cases of primary syphilis with penicillin and noticed disappearance of Spirocheta pallida from the lesions in a matter of hours, healing of the lesions in days, and a reversal of the serologic test for syphilis to negative in a matter of weeks. Since this initial demonstration there have been many attempts to determine the optimal time-dosage factors necessary to cure syphilis with penicillin.

Varying dosages and schedules, different fractions and preparations of penicillin in different kinds and stages of syphilis have been tried, followed-up, observed and reported. Much information has been gained. There is increasing confidence. For more than two years, there has been a feeling that some one would come out with the near perfect treatment-dosage-schedule presented with conclusive evidence. The variations in individual response, dosage-time-relations and penicillin fractions continue to prevent this simplification. These circumstances tend to compel every physician treating syphilis to be a sort of research worker or experimenter in the field of syphilis therapy. This may serve a useful purpose in causing him to observe more acutely and to follow-up more assiduously. In this transition period, without certainty as to what is the best treatment, one thing bristles with importance, i.e. *the urgency of following-up each patient treated by a rapid method.* Periodic physicals and quantitative serology are essential, as well as a spinal fluid examination six months after treatment. In late syphilis get a spinal fluid report before completing treatment.

Information up to now indicates that penicillin is the safest, quickest and most certain-to-cure agent for the treatment of most cases of syphilis. New information is accumulating on how to use it best, and while the role of impurities and the value of the different fractions is not completely settled, it is reassuring to know that at present we are not getting any appreciable amount of the ineffective K fraction.

Penicillin has gained strong support for treatment of all early syphilis (less than 4 years duration), syphilis in pregnancy, congenital syphilis, many cases of neurosyphilis, many cases of osseous, skin and other late syphilis.

When penicillin alone is used, it is considered that in *early syphilis* an effective dosage is 3 million units. Schedules vary from 40,000 to 60,000 units every 2 or 3 hours for 8 to 12 days with aqueous penicillin, hospitalization being required. The use of penicillin in oil and beeswax (POB) is gaining in popularity at present because it permits ambulatory treatment. A recent report by E. W. Thomas et al[1] on 802 cases of early syphilis getting 600,000 units of POB given at one injection daily for 8 days indicates high effectiveness. A number of clinics are now treating early syphilis with 600,000 units of POB in one daily injection for 5 days or longer. Reports on the results may be expected in the current literature at any time. Studies on the blood levels indicate that it is preferable to give POB late in the day because if given early in the day muscular activity leads to earlier absorption and excretion with less probability of a therapeutic level being maintained for the full 24 hours.

If relapse occurs after penicillin treatment in early syphilis it most frequently comes between 5 and 7 months after treatment. A sharp rise in the quantitative titer is considered evidence of an impending relapse.

The time required for serology to return to negative after penicillin treatment depends largely upon how long the disease was present before treatment was instituted. In very early cases of a few weeks' duration, the serology may be negative in 2 to 4 months after treatment, while in late syphilis it may be longer than a year before becoming negative. As after other treatment there may be some cases that will become Wassermann-fast, or seroresistant, permanently.

Increasing evidence indicates that penicillin is the treatment of choice in syphilis in pregnancy. Quantitative serology at regular intervals is necessary to safeguard against relapse and for criteria as to cure.

Congenital syphilis in early and late stages re-

*Read in the Symposium on Therapy at the Medical College of Virginia, Richmond, February 19, 1947.

sponds satisfactorily to penicillin therapy in most cases. Interstitial keratitis and juvenile paresis are thought to need fever therapy with penicillin. Wilkinson[2] found that 20,000 to 40,000 units per kg. given in 60 to 80 divided doses over 7½ to 10 days was satisfactory. Ingram et al[3] advises a substantial increase in dosage over that equal to 2.4 millions for a 150 pound adult.

Many cases of neurosyphilis are responding favorably to penicillin and striking improvement in the cerebrospinal fluid abnormalities is obtained when adequate dosage over a two week period is maintained. It is probable that a total dosage above 6,000,000 units should be employed in a 10 to 14 day period or longer. At present POB on an ambulatory basis with 600,000 units at one injection daily for 10 to 20 days is being tried and there should be reports of interest on this in the future. Many clinics are continuing around-the-clock therapy and adding fever in symptomatic and optic atrophy cases.

In all *late syphilis* there is no urgency and treatment reactions may be dangerous. S. Olansky[4] reports Herxheimer reactions with fever up to 104°F. following the very small initial dose of 1,000 units of penicillin. He advises in late latent and late symptomatic syphilis that bismuth be given before starting penicillin if accidents are to be avoided. A point of interest here is that deaths have followed in 12 hours the beginning of penicillin for carbuncle, pneumonia, etc., and autopsy showed undiagnosed luetic aortitis or cardiovascular syphilis.

The use of penicillin in cardiovascular syphilis should be with caution and after bismuth. This danger would make it advisable to check up on all patients with regard to cardiovascular syphilis before starting penicillin for treatment of any disease.

In rapid treatment of syphilis the problems of reinfection assume importance comparable to the need for follow-up. In most areas of this state your local or state health department can be of assistance in helping trace or locate contacts. Also, your patients may be sent to one of the Rapid Treatment Hospitals, or the clinics in the larger cities, to get diagnostic studies and lumbar punctures and will be referred back to you if desired.

With our present information it is believed that if each of us asks ourself how would we want to be treated, the answer would be in many cases "give penicillin a thorough trial first, because it is safe and quick, observe and follow-up carefully for evidences of failure to cure and later if necessary resort to arsenic, bismuth, or fever". Since many patients may not remain under observation after treatment the inclusion of 10 to 20 arsenical treatments and 8 to 10 bismuth treatments in the 10 or 12 weeks after penicillin may serve to improve the follow-up observations. Also, many syphilologists believe that such combined treatment is more effective. It is believed that the decision as to penicillin alone or combined therapy should be decided on consideration of the individual case.

The time when most syphilis may be treated adequately by doctors in general practice seems close at hand.

The *Journal of Venereal Disease Information* includes original articles and abstracts from the current literature on this subject. It may be had from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for seventy-five cents per year.

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Schering Extends Radiographic Research.

Drs. Harold L. Temple and Sydney Weintraub, of the Department of Radiology of Cornell University School of Medicine, New York, have been granted a research fund to support further studies in the field of radio-opaque media. The grant has been established by Schering Corporation, of Bloomfield and Union, New Jersey.

PUBLIC HEALTH

L. J. ROPER, M.D.,
State Health Commissioner of Virginia

The report of the Bureau of Communicable Diseases of the State Department of Health for May, 1947, as compared with the same month in 1946, and for the period of January through May, 1947, compared with the same period in 1946, is as follows:

	May 1947	May 1946	Jan.-May 1947	Jan.-May 1946
Typhoid and Paratyphoid	9	3	31	27
Diarrhea and Dysentery	453	165	1,816	723
Measles	1,294	2,832	6,074	9,831
Scarlet Fever	102	233	760	1,746
Diphtheria	17	31	125	199
Poliomyelitis	2	2	14	8
Meningitis	8	16	55	132
Undulant Fever	10	6	26	19
Rocky Mountain Spotted Fever	6	6	7	8
Tularemia	2	3	28	29

SALMONELLA INFECTIONS

With the onset of warm weather increased prevalence of food poisoning may be expected. Food poisoning may, of course, develop in any season when food has been exposed to pathogenic bacteria, their toxins and chemical and biochemical poisons. Obviously, such factors as high temperature, wider dietary range, and vacation activities predispose to food poisoning during the summer months. The illness may vary markedly from a transient indisposition to that of a serious disease carrying high mortality. A wide variety of pathogenic bacteria is held responsible for human infection and toxemia and, among these, the salmonella group occupies an important position in the so-called food poisoning.

The first member of the salmonella group was identified in 1888 by Gärtner and was named salmonella enteriditis. Since then approximately 150 serologically different species have been reported and these in turn have been divided into nine groups. Most public health laboratories have facilities to name and to group the salmonella organism, but are unable to identify the species. This service is made available without cost through three national salmonella typing centers, and in the Virginia area the facilities of the University of Kentucky are used. It is accepted that all members of the salmonella family are potentially pathogenic to man. However, human infection is frequently accidental, the disease being normally endemic or epidemic in animal or avian families. Exceptions to this are found in the paratyphoid group (A, B & C) which are now recognized as species of the salmonella bacteria.

Salmonella infection in man is largely acquired through ingestion of food or drink contaminated by actual animal disease or by a wide range of infected food products. Such dietary items as meat, fish, poultry, eggs and dairy products serve as excellent media for bacterial multiplication when infected and allowed to stand at room temperatures. Direct and indirect transmission may result from food contaminated by human cases and carriers, by rodent feces and by insects.

The incubation period of salmonella infection is generally of short duration, frequently only a few hours and seldom longer than two or three days. Severity of the clinical picture varies markedly, but essentially symptoms and signs are those of enteric infection. Although isolated cases frequently appear, family and group illnesses of a food poisoning nature are common. The disease is generally not prolonged beyond a week's time and has a mortality not usually exceeding 2 per cent. The convalescent-carrier state may persist for several weeks and, like typhoid fever, a few cases will remain permanent carriers.

Treatment largely remains on a symptomatic basis with the patient isolated and in bed during the febrile period. Some promise of specific therapy is offered by sulphadiazine, sulphaguanidine and sulphasuccinamide or by combinations of these drugs. Streptomycin, preferably given by mouth, may also be helpful alone or with sulphanyl therapy. If possible, medication should be maintained several days beyond clinical recovery, as otherwise symptomatic or bacterial relapse may be expected. In the interest of control it is advised that release be based upon repeatedly negative fecal laboratory examinations.

Methods of prevention and control of salmonella infection are summarized as follows:

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1. Pasteurization of milk and other dairy supplies.
2. Adequate cooking and canning of all food stuffs.
3. Careful washing of all foods whenever practicable.
4. Refrigeration of perishable foods below 50° F.
5. The maintenance of adequate food inspectional services.
6. Insect and rodent control program.
7. The control of known cases and carriers of salmonella infection.
8. Supervision of water treatment facilities.

MEDICAL SOCIETY OF VIRGINIA

PUBLIC RELATIONS

Organized Effort Essential

In previous issues of VIRGINIA MEDICAL MONTHLY, and in other communications with Councilors, members of the District Council, and officials of local medical societies, we have endeavored to stress the importance of organizing our efforts if results in Public Relations are to be expected. The response has been encouraging and stimulating to the point of suggesting further improvement.

We are glad to report that members of the District Council have been named for nearly every medical society in Virginia, and for almost every county in which there are doctors but no medical society; one hundred and twenty in number, to work under the direction of the nine Councilors in Virginia.

The Public Relations Department has offered suggestions (from a program approved by the Public Relations Committee) for the Councilors, and has also made specific suggestions of activities for the members of the District Council.

Constitutional provision for the offices of Councilors and members of the District Council would probably have not been made, had the need of a program such as they could help carry out, not been seen.

The personnel are named, a program is suggested, specific activities are proposed, all of which is by way of setting up the necessary machinery for a functioning program.

Our program of Public Relations itself is so dependent upon the efforts of these officials and the cooperation they receive from officers and members of local medical societies, and the profession generally, that we wish to urge every Doctor of Medicine in Virginia to consider the importance of this, and to give his assistance. Laymen are urged to "consult their local physician". . . . We urge our doctors to "consult your member of the District Council."

Several medical societies in Virginia have active Public Relations Committees. It is hoped that more of such committees will be appointed in other medical societies to work with their member of the District Council in furthering a still better unified effort on the part of the medical profession of Virginia to achieve our objective.

We should like to reiterate our enthusiasm over results accomplished so far, and our interest in the challenge this success affords everyone interested in (1) our Present System of Medicine and (2) more, and still better, medical care, for more people.

BOOK ANNOUNCEMENTS

Music in Medicine. By SIDNEY LICHT, M.D., Fellow, New York Academy of Medicine. New England Conservatory of Music, Boston, Massachusetts. 1946. xx-132 pages. Cloth. Price $3.00.

The application of music to medical therapy is as old as music and apparently antedates the origin of the earliest knowledge concerning human disease and its treatment. In modern times, the scientific foundation of medicine has caused our profession to veer away from application of such intangible therapeutic measures as music. More recently, renewed interest has been awakened by the use of music in certain psychiatric disorders and many reports have been published in the medical literature with some rather unorthodox claims and overenthusiastic statements in the musical literature.

"Music in Medicine", written by a physician who is also a musician, is the most practical short treatise on the subject that has been seen by the reviewer. The material presented is concise, well organized and based on very sound fundamental principles, both of music and of medicine. No exaggerated or overenthusiastic claims are made. There is a recognition of the value of music in lifting the morale and increasing the comfort and satisfaction of ill persons. The fundamental facts concerning the practical use of music in the sick room and in hospitals is well described.

The chapters consider briefly the history of music in medicine, the philosophy and psychology of music; then, in more detail, describe what is known and practical in music as occupational therapy in psychiatry, for meal times, for the bed patients and as diversion and entertainment to the convalescent patient. There is additional material concerning the technical uses and advantages of certain types of public address systems and musical instruments and the proper equipment and library for different size hospitals. Dr. Licht recommends urgently that only well qualified musicians with adequate training as hospital special service personnel, be employed by hospitals and that the musical schools in the United States initiate special courses for musicians who plan to enter this type of work. He presents a suggested curriculum for such students of music and includes psychology, physiology, physics, occupational therapy and such courses for their education.

Personal experienoe by the reviewer with the use of music in naval hospitals during the war, produced the definite conviction that the correct type of music, properly applied in hospitals, resulted in a shorter period of convalescence and more rapid recovery of the patient, with earlier discharge from the hospital. The patients were in better spirits, particularly during the period of convalescence when they are often very restless and dissatisfied with hospital routine. This experience has convinced the reviewer that the judicious use of music in private hospitals would be of great benefit, both to the patient and to the hospital, and more than repay the amount of money spent on such a program. This book is the best textbook for hospital administrators interested in such a program and every hospital director should make it a part of his library.

G. Z. WILLIAMS.

The Compleat Pediatrician. Practical, Diagnostic, Therapeutic, and Preventive Pediatrics. By WILBURT C. DAVISON, M.A., D.Sc., M.D., Professor of Pediatrics, Duke University School of Medicine, and Pediatrician, Duke Hospital; Formerly Acting Head of Department of Pediatrics, The Johns Hopkins University School of Medicine; etc. Fifth Edition. Duke University Press, Durham, North Carolina. 1946. vii-256 pages. Cloth. Price $3.75.

This book, which started as a scrapbook of pediatric notes, has been developed into a remarkable practical quick reference text. The subject of pediatrics is approached from the symptoms and signs that the child may show rather than from the systematic descriptions of various diseases. It is complete and practical and the fifth edition has brought the subjects of chemotherapy, infectious diseases, and tropical diseases up to date. It is indeed the best quick reference pediatric work available.

H. T. DOUGAN.

The American Hospital. By E. H. L. CORWIN, Ph.D., Executive Secretary, Committee on Public Health Relations the New York Academy of Medicine; Honorary Charter Fellow of the American College of Hospital Administrators; Former Secretary General and Honorary President of the International Hospital Association. New York. The Commonwealth Fund. 1946. 226 pages. Cloth. Price $1.50.

This monograph on the American Hospital was published under the auspices of the Committee on Medicine and the Changing Order of the New York Academy of Medicine. It is one in which you can find almost anything you might want to know about the modern hospital—information that is available in no other single volume.

M. P. R.

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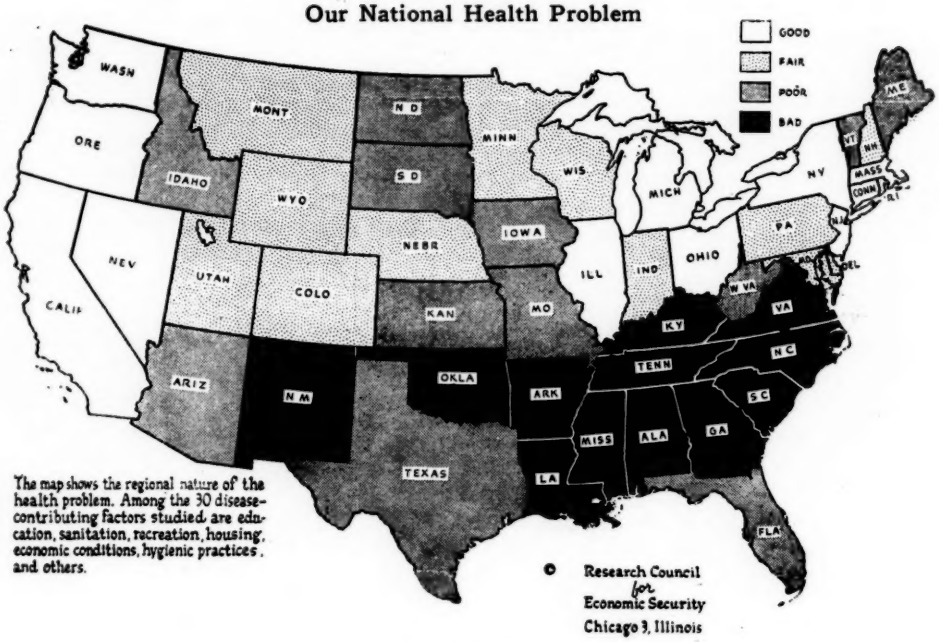
EDITORIALS

Our National Health Problem



The map shows the regional nature of the health problem. Among the 30 disease-contributing factors studied are education, sanitation, recreation, housing, economic conditions, hygienic practices, and others.

Sanitation

UNDER sanitation in the above survey, are housing and sewerage disposal. In 1940 fifty-six and one-half per cent of the houses in Virginia were without sewer connections and 23.3 per cent were in need of major repairs. In Massachusetts only 6 per cent of the houses were without sewer connections. In Mississippi 81 per cent of the houses lacked sewer connections. A glance at the columns of figures in the survey shows that there is an inverse correlation between houses without sewer connection and urban population. Actually the coefficient of correlation figures ought to be —0.817 and the probable error ±.048. Since the coefficient of correlation is 17 times the probable error it is highly significant.

In regard to houses needing major repairs there were 19 states as bad or worse than Virginia. Her percentage of defective housing was 23.3 as compared with 18.3 per cent for the nation as a whole. These two factors, defective housing and lack of sewerage connection, were combined in a manner that was not stated under the general heading of Sanitation. Under this heading Virginia's grade was 31, whereas New York and Rhode Island each had a grade of one. Sixteen states had a higher grade than Virginia. Arkansas' grade was 48 which is not surprising to anyone who has driven through that state.

Years ago when your editor was health officer for Chesterfield County he tried to introduce a sanitary privy in the more populous parts of the county. The Chairman of the Board of Supervisors, who was also president of the Board of Health, said he much preferred a fence corner and would walk a mile to avoid using one of those new fangled contraptions. We told him that his aversion to a modern privy would not keep his children from having hookworm nor protect him from intestinal diseases. Needless to say we did not get far with the sanitary privy.

Meeting of the American Association of the History of Medicine

THE American Association of the History of Medicine held its twentieth annual meeting in the beautiful Allen Memorial of the Cleveland Medical Library, May 25th and 26th. This was the first time the Association has met so far west. Quite appropriately the program had to do chiefly with American Medicine, especially with medicine a hundred years ago. Dr. Sigerist described the world in 1847. Europe had recovered from the Napoleonic wars and was beginning to feel the effects of the industrial revolution. Against this background Owsei Temkin painted the picture of medicine in continental Europe, Larkey that of Great Britain and Genevieve Miller that of the United States. There was a tremendous difference between the advances made by the leaders in medicine and the general run of practice. In London and Dublin, for instance, Addison, Bright, Robert Adams, Graves and Stokes were making great discoveries in clinical medicine but a perusal of the *Lancet* shows that they were far in advance of the average practitioner. More detailed pictures of the American Medical scene were given by Philip Jordan who described the public health problems in the Minnesota lumber camps; Phyllis Allen who discussed early animalcular hypotheses; D. A. Tucker who gave a good account of Alonzo T. Kent, an early cardiologist of Cincinniati, who devised a compound sphygmograph and whose work was recognized abroad; Otto Glasser discussed American contributions to roentgenology; and L. J. Moorman gave a first hand description of pioneer medicine in the Southwest. Dr. Edward Tiffin, Ohio's first Governor, mixed medicine with politics from the time he moved to Ohio from Alexandria, Virginia, according to the story as told by L. F. Edwards.

One of the most interesting symposia was that on medical schools—these in California, Ohio and Vermont were discussed. They had much in common whether in the East, mid West or the Pacific Coast. At first they were largely personal affairs and there was much squabbling among the faculty and changing over from one school to another. Some one described Daniel Drake as a great organizer and disorganizer; a great founder and a great flounder. The chief asset of these early schools was the power to give a degree in medicine. To exercise this right necessitated a connection with some chartered college, but this connection was usually a nominal one. In California, Richard Beverly Cole, a native of Manchester, Virginia, changed his allegiance almost as much as Daniel Drake did in Ohio and Kentucky; sometimes he was connected with the University of the Pacific which finally became the Medical Department of Leland Stanford University and sometimes with Toland Medical College which eventually became the medical department of the University of California.

Chauncey Leake read in cadence a delightful account of Sir James Y. Simpson and chloroform, and E. Ashworth Underwood, Director of the Wellcome Historical Medical Museum, London, gave us a beautiful dissertation on Apollo and Terpsichore, Music and the Healing Art. At the annual dinner, two Cleveland doctors and two members of the Cleveland Orchestra fittingly enough rendered two selections of Brahms, one of which had been dedicated to the physiologist, Engelmann, and the other to the surgeon Billroth. John Fulton talked in his usual delightful manner of the correspondence between Harvey Cushing and Arnold Klebs and gave us a clear understanding of the natures of the two men and also of why Klebs left his wonderful library to the Yale Medical School.

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The Medical Library Association

THE Medical Library Association held its 46th meeting in Cleveland on May 27th-29th. There were many new faces and we missed some of the old standbys. Dr. W. W. Francis had had a heart attack and his physical activities had been restricted to such an extent that he was unable to come to the meeting. The ladies of the Association do a tremendous amount of work and they conduct their meetings in a most business-like way. The Association has grown in importance so much that its membership is greatly sought after both abroad and in the United States. The committee on membership has its hands full with problems of eligibility.

There were a number of interesting symposia. The presiding officer of the first one informed us that the first definition of a symposium is "a drinking party". While the symposia did not live up to this definition, they were anything but dry. For instance there was one on "Visual Aids and the Medical Library" in which Tom Jones discussed the visual teaching media. He said the various media would never replace books but that they could make books much more useful. Dr. Bruno Gebhard, Director of the Cleveland Health Museum, described the possibilities of such a museum in teaching the lay public. Dr. Dittrick went into the history of the historical museum. The brilliant example of the British Museum which started with the collection of Sir Hans Sloan and became supreme in all fields, natural history, art, books, etc., was cited. Mr. Ralph Creer, secretary of the committee on motion pictures, explained the A. M. A.'s program. While the A. M. A. owns about forty films, its aim is to act as a clearing house for films. His committee hopes to be able to tell anyone interested where he might borrow the films desired. The librarian of the College of Physicians and Surgeons, Columbia University, described an ideal floor for storing and using film in a teaching institution. In their new building, which is still in the blueprint stage, for viewing films, they have a central hall seating 150 persons. There will also be separate cubicles for individual viewings and, of course, proper air conditioned storage space.

One afternoon was given over to a discussion of lighting, the Library of Congress Mission to Europe, the Veterans' Administration Medical Library Service, and the problems of constructing a medical dictionary. The Veterans' Administration is to have the Cumulative Index Medicus reprinted. Mr. Scott Adams of the Library of Congress Mission to Europe reported that the Army Medical Library had about 80 per cent of the German publications of the war years.

At the annual banquet, Dr. Morris Fishbein spoke on the subject "A Century of American Medicine". By way of introduction he said that Bill Nye was in the habit of submitting six or seven titles and then adding a postscript to the effect that it made no difference which title you selected you got the same speech. Dr. Fishbein spoke on the American Medical Association which started one hundred years ago, mainly for the purpose of improving medical education. Its first step was to appoint a committee to gather facts and establish standards. It then created a Council to enforce the standards by means of publicity. The Council on Medical Education and Hospitals published each year the results of the State Boards examinations showing the percentage of graduates of each school that passed the examinations. As other needed reforms, patent medicine, food adulteration, etc., appeared, the same technic was followed. The latest council to be formed is the Council on Medical Service. In this connection, Fishbein paid his respects in no uncertain terms to Dr. C. E. A. Winslow, Dr. P. H., and Editor of the *American Journal of Public Health* who at the last

annual banquet in New Haven made a speech in favor of federalizing the practice of medicine.

One of the most interesting things that Dr. Fishbein said was that in a meeting of the Honorary Consultants of the Army Medical Library that afternoon, steps were taken to improve the indexing of the World's Medical Literature. The idea towards which they were working was a monthly which would contain all the current titles, a yearly cumulative volume, and a five year cumulative volume. This would supplant the present Quarterly Cumulative Index Medicus and the Index Catalogue of the Army Medical Library and the Current List of Medical Literature.

SOCIETIES

Alleghany-Bath County Medical Society.

At a recent meeting, this Society elected delegates and alternates to the October meeting of the State Society, and also elected the following officers: President, Dr. M. B. Jarman, Hot Springs; vice-president, Dr. H. G. Hudnall, Covington; and secretary-treasurer, Dr. R. P. Hawkins (re-elected), Clifton Forge.

The Amelia County Medical Society,

A unit of the Fourth District and Southside Virginia Medical Association, held its annual meeting on May the 26th, at which time they elected delegate and alternate to the State meeting in October, and also elected the following as officers for the coming year: President, Dr. H. Cowles Rucker, Mattoax; vice-president, Dr. J. M. Habel, Jetersville; and secretary-treasurer, Dr. J. T. O'Neal, Amelia. Dr. O'Neal succeeds Dr. J. L. Hamner who has served in this office for over fifteen years.

The Alexandria Medical Society

Held its annual banquet on May 22nd at the Army and Navy Country Club in Arlington. Following the installation of the newly elected officers, the members of the Society and their wives were addressed by Mr. Arthur J. Casey, general manager of Radio Station WOL in Washington, who stressed the role of radio as a powerful educational medium.

Officers installed were: President, Dr. Harrison Picot; vice-president, Dr. Arthur J. Mourot; and secretary-treasurer, Dr. George Speck.

The next meeting of the Society will be held in September.

At a special meeting of the Society June 5th, the current controversy between the Alexandria Hospital and the City Council was considered and discussed by the members.

It was reaffirmed that the medical care of all individuals, regardless of financial status, is an obligation which the members assume and discharge daily.

Recognizing that the public might be misled into thinking that the attitudes expressed in the press on this subject are representative of the opinion of the physicians, when in fact they have not been consulted by either party to the controversy, a clarifying resolution was deemed important. It was agreed that other groups in the community have an interest in the solution of this problem.

At the conclusion of the meeting the following resolution was adopted:

WHEREAS, The physicians of the Alexandria Medical Society are vitally interested in the care of indigent patients and in the welfare of the Alexandria Hospital, and

WHEREAS, The Society feels that the care of the indigents of the city is the responsibility of the community as a whole, and

WHEREAS, The Board of Directors of the Alexandria Hospital and the City Council have been unable to arrive at any conclusion as to the cost of the care of indigents,

BE IT RESOLVED That the Alexandria Medical Society recommends that the proposal of the Alexandria Council of Social Agencies be accepted by the City Council and the Board of Directors of the Alexandria Hospital, and

BE IT FURTHER RESOLVED That the recommendations of a consultant be made a basis for settlement.

GEORGE SPECK, M.D.
Secretary.

Lynchburg Academy of Medicine.

At the June meeting of the Academy, Dr. S. R. Arnold of Amherst was admitted to membership. The program was given by Dr. McLemore Birdsong and Dr. William Grossman of the University of

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Virginia, their subject being Diarrhea.

Dr. Edwin A. Harper and Dr. Robt. H. Cox, Jr., are president and secretary, respectively, of the Academy.

Virginia Peninsula Academy of Medicine.

At the May meeting of the Academy, Dr. Joseph N. Hayman, Professor of Medicine at Western Reserve University School of Medicine, Cleveland, Ohio, spoke on "The Pathological Physiology of Kidney Disease". There was an attendance of seventy and Dr. George G. Hankins, Newport News, vice-president, presided in the absence of Dr. Robert H. Wright, president. Drs. I. F. Nesbitt and William L. Davis, Newport News, and Eugene D. Hardin, Hilton Village, were admitted into membership.

New officers were elected as follows: President, Dr. Paul Hogg, Newport News; vice-president, Dr. Eldred S. Jones, Hampton; and secretary-treasurer, Dr. Chester D. Bradley (re-elected), Newport News. The next meeting of the Academy will be held in September.

During the session just closed the Society was addressed by the following speakers: Dr. Frank Lock, Winston-Salem, N. C.; Dr. Paul D. Camp, Richmond; Dr. William L. Thomas, Durham, N. C.; Dr. Joseph Hughes, Philadelphia; Dr. Fletcher Woodward, Charlottesville; Dr. J. Grafton Love, Rochester, Minn.; Dr. Harry Bakwin, New York, N. Y.; Dr. Charles Troland, Richmond; Dr. Benjamin Baker, Baltimore, Md.; Dr. Joseph N. Hayman, Cleveland, O. Papers presented by these speakers included endometriosis, heart disease, vaginitis, psychoneurosis, esophageal disease, protruded intervertebral disc, child psychology, head injury and kidney disease. One meeting was devoted to a clinicopathological conference. The Virginia Peninsula Academy of Medicine also had the honor of a visit from Dr. Harrison H. Shoulders, president of the American Medical Association, whom it entertained at Newport News.

NEWS

Medical College Finals.

UNIVERSITY OF VIRGINIA

Commencement exercises of the Medical Department of the University of Virginia were held jointly with those of the other departments June 13-16, the social features being the usual dances, dinners and concert. There were sixty-seven graduates in the Department of Medicine, their names and hospital appointments being given below:

UNIVERSITY OF VIRGINIA HOSPITAL, Charlottesville —Drs. Robert Whitehead Alfriend, Norfolk; Carl Ashton Broaddus, Jr., Newtown; Edmund Madison Chitwood, Jr., Wytheville; James Hicks Corey, Greenville, N. C.; Dorris Alvin Cunningham, Jonesville; Powell Garland Dillard, Jr., Lynchburg; Ernest Malcolm Dixon, Wilkinsburg, Pa.; Claiborne Willcox Fitchett, Norfolk; Edward Reginald Hipp, Jr., Charlotte, N. C.; Glenn Hickam Richmond, Norton; Frank Marcellus Ripberger, Jr., Blackstone; and Gary Grayson Suter, Fort Defiance (Pathology Department).

DEPAUL HOSPITAL, Norfolk—Dr. James Paul Elkins, Indianapolis, Ind.

LAKESIDE HOSPITAL, Cleveland, Ohio—Dr. Crescent Frank Balmenti, Youngstown, Ohio.

MT. SINAI HOSPITAL, Cleveland, Ohio—Dr. Louis Herman Calisch, Danville.

AKRON CITY HOSPITAL, Akron, Ohio—Dr. James Maurice Knopp, Staunton.

BARONESS ERLANGER HOSPITAL, Chattanooga, Tenn. —Drs. Hugh Miller Batson, Jr., and Billy Norris Golden, both of Hattiesburg, Miss.

CHARLESTON GENERAL HOSPITAL, Charleston, W. Va.—Dr. Robert Ludington Brown, III, Parkersburg, W. Va.

PARKLAND HOSPITAL, Dallas, Texas—Dr. William Knox Brown, Houston, Texas.

BAYLOR UNIVERSITY HOSPITAL, Dallas, Texas—Dr. David Alexander Christian, III, Appomattox.

STRONG MEMORIAL HOSPITAL, Rochester, N. Y.— Drs. Herbert Augustine Claiborne, Jr., Richmond, and James Barrett Jones, Charlottesville.

SYRACUSE UNIVERSITY HOSPITAL, Syracuse, N. Y.— Drs. Robert Castleman Green, Jr., Winchester, and David Cole Wilson, Jr., Charlottesville.

KINGS COUNTY HOSPITAL, Brooklyn, N. Y.—Dr. Stuart Leslie Haas, Springfield, Mass.

BELLEVUE HOSPITAL, New York, N. Y.—Drs.

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Emory Falcon Hodges, Jr., Petersburg; and Columbus Downing Tait, Jr., Chester.

THE NEW YORK HOSPITAL, New York, N. Y.—Dr. William Andrew MacIlwaine, Charlottesville.

THE MOUNT SINAI HOSPITAL, New York, N. Y.—Dr. Murray Benjamin Pincus, Wilkes-Barre, Pa.

NEW YORK POST-GRADUATE HOSPITAL, New York N. Y.—Dr. Nathaniel Lancaster Rodgers, Martinsburg, W. Va.

FLOWER AND FIFTH AVENUE HOSPITAL, New York, N. Y.—Dr. Eugene David Schwartz, Newport News.

BETH ISRAEL HOSPITAL, New York, N. Y.—Dr. Alfred Yager, Englewood, N. J.

BRADY UROLOGICAL INSTITUTE, JOHNS HOPKINS UNIVERSITY, Baltimore, Md.—Dr. Wilford Anderson Hall Councill, Jr., Baltimore, Md.

THE JOHNS HOPKINS HOSPITAL, Baltimore, Md.—Dr. Eugene Augustus Hildreth, Jr., Toledo, Ohio.

UNIVERSITY OF MARYLAND HOSPITAL, Baltimore, Md.—Dr. Richard Allen Neubauer, Wilmington, Del.

UNION MEMORIAL HOSPITAL, Baltimore, Md.—Dr. Mortimer Lee Williams, Roanoke.

VIRGINIA MASON HOSPITAL, Seattle, Wash.—Drs. William Arthur Cover, Elkton; and Morton Callowhill Wilhelm, Roanoke.

EMORY UNIVERSITY HOSPITAL, Atlanta, Ga.—Drs. Waverly Berkley Dashiell, Norfolk; and Joe Elias Mitchell, Charlotte, N. C.

DUKE UNIVERSITY HOSPITAL, Durham, N. C.—Dr. Nathaniel McGregor Ewell, Jr., Charlottesville.

NORTH CAROLINA BAPTIST HOSPITAL, Winston-Salem, N. C.—Dr. Henry Clayton Landon, III, North Wilkesboro, N. C.

WATTS HOSPITAL, Durham, N. C.—Dr. Charles Robert Thompson, Lenoir, N. C.

JEFFERSON-HILLMAN HOSPITAL, Birmingham, Ala.—Drs. Herbert Lyman Findley, Jr., Tuscaloosa, Ala.; William Francis Murphy, Jr., Abbeville, Ala.; and Guy Leslie Rutledge, Jr., Northport, Ala.

UNIVERSITY HOSPITAL, Oklahoma City, Okla.—Dr. William Patton Fite, Jr., Muskogee, Okla.

PRESBYTERIAN HOSPITAL, San Juan, P. R.—Dr. Jaime Higinio Font, Santurce, P. R.

GEORGE WASHINGTON UNIVERSITY HOSPITAL, Washington, D. C.—Dr. Charles Edwin Horton, Vienna.

ST. JOSEPH INFIRMARY, Louisville, Ky.—Dr. William Herbert Howell, Jr., Morgantown, W. Va.

LOUISVILLE GENERAL HOSPITAL, Louisville, Ky.—Dr. John Sheffield Tennant, Newtonville, Mass.

DETROIT CITY RECEIVING HOSPITAL, Detroit, Mich.—Dr. John Jefferson Mahood, Bluefield, W. Va.

PENNSYLVANIA HOSPITAL, Philadelphia, Pa.—Dr. John Houston McClung, Lexington.

THE LANKENAU HOSPITAL, Philadelphia, Pa.—Dr. Charles Theodore Michele, Pulaski.

HOSPITAL OF THE PROTESTANT EPISCOPAL CHURCH, Philadelphia, Pa.—Dr. Benjamin Boisseau Weisiger, III, Richmond.

PHILADELPHIA GENERAL HOSPITAL, Philadelphia, Pa.—Dr. Suzanne Hayward Worrilow, Roanoke.

NORWALK GENERAL HOSPITAL, Norwalk, Conn.—Dr. Rea Parker, Jr., Smithfield.

BETH ISRAEL HOSPITAL, Newark, N. J.—Dr. Edwin Pearlman, Norfolk.

GRADY MEMORIAL HOSPITAL, Atlanta, Ga.—Dr. James Andrew Pettigrew, Ivanhoe.

UNIVERSITY OF MICHIGAN HOSPITAL, Ann Arbor, Mich.—Dr. Clyde Hartwell Ward, Richmond.

JACKSON MEMORIAL HOSPITAL, Miami, Fla.—Dr. Dewey Anderson White, Jr., Birmingham, Ala.

METHODIST HOSPITAL, Indianapolis, Ind.—Dr. James Dwight Whitt, Gate City.

UNITED STATES PUBLIC HEALTH SERVICE—Drs. Richard Littleton Haines, Catskill, N. Y.; and Charles Warren Whitmore, Salem.

Dr. Thomas Henry Alphin, Charlottesville, and Dr. Edgar Coley Garrard, Roanoke, are also members of the graduating class.

MEDICAL COLLEGE OF VIRGINIA

The one hundred tenth commencement exercises of the Medical College of Virginia were held June 14-17, starting with the Student Body Dance on the 14th and ending with the annual reception and dance at the Jefferson Hotel on the last evening. Miss Meta Glass, A.M., Ph.D., Litt.D., LLD., D.C.L., President Emeritus of Sweetbriar College, gave the address at the final exercises on Tuesday evening. The Honorary Degree of Doctor of Science was conferred upon Brigadier General Guy Blair Denit, United States Army, Office of the Surgeon General.

Dr. Robert Quarles Marston, Toano, a member of this graduating class, received the Rhodes Scholarship to Oxford University, England.

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Other graduates of the School of Medicine with hospital appointments are:

MEDICAL COLLEGE OF VIRGINIA HOSPITAL, Richmond—Drs. Franklin Lynwood Angell, Roanoke; Howard Olsen Burnette, Richmond; John Abbott Byrd, Parksley; Richard Harding Fisher, Salem; Milton David Friedenberg, Petersburg; Catherine Ann Howard, Hampton; David Josephs, Sanford, N. C.; Berry Judson McClanahan, Richmond; Malcolm Bruce Martin, Richmond; Charles Hymerick Meeks, Arlington; Francis Robert Payne, Jr. Newport; Roy Sherman Temeles, Pittsburgh, Pa.; Enoch W. White, Jr., Jane Lew, W. Va.; and Leah Mildred Williams, Hinton, W. Va.

STUART CIRCLE HOSPITAL, Richmond—Drs. Stuart Thomas Bray, Richmond; and George Edward Calvert, Lynchburg.

JOHNSTON-WILLIS HOSPITAL, Richmond—Drs. Genevieve Marston Garrett, Morgantown, W. Va.; James Power Harnsberger, Richmond; and Jean Ann Wilfong, Richmond.

LEWIS-GALE HOSPITAL, Roanoke—Dr. Noland MacKenzie Canter, Jr., Harrisonburg.

NORFOLK GENERAL HOSPITAL, Norfolk—Drs. Stephen Childrey, Ruther Glen; Douglass Orville Hill, Waynesboro; and Robert Edward Paine, Jr., Roanoke.

DEPAUL HOSPITAL, Norfolk—Dr. William Barrett Pope, Jr., Portsmouth.

UNITED STATES NAVAL HOSPITAL, Portsmouth—Dr. Wayne Wilson Dutton, Chilhowie.

CHARLESTON GENERAL HOSPITAL, Charleston, W. Va.—Drs. John Sommer Blagg, South Charleston, W. Va.; and Jay Emmett Rogers, Jr., Charleston, W. Va.

SAINT MARY'S HOSPITAL, Huntington, W. Va.—Drs. Arthur Allen Carr, War, W. Va.; David Alonzo Haught, Jr., Huntington, W. Va.; and Shelby Edward Jarrell, Packsville, W. Va.

OHIO VALLEY GENERAL HOSPITAL, Wheeling, W. Va.—Drs. Elmond LeMoyne Coffield, Morgantown, W. Va.; Ray Silvio Greco, Fairmont, W. Va.; William Sawyers Herold, Summersville, W. Va.; Frank McDonald Peck, Logan, W. Va.; and James William Peck, Summersville, W. Va.

CITY HOSPITAL, Winston-Salem, N. C.—Dr. Robert Willoughbee Bradley, Sabot.

WATTS HOSPITAL, Durham, N. C.—Dr. Thomas Sidney Cheek, Smithfield, N. C.

CHARLOTTE MEMORIAL HOSPITAL, Charlotte, N. C.—Drs. Harry Clifford Foster, Jr., Clifton Forge; Hampton Hubbard, Charlotte, N. C.; and Philip Lee Allen Minor, Richmond.

VANDERBILT UNIVERSITY HOSPITAL, Nashville, Tenn.—Dr. Charles Whitney Caulkins, Leesburg.

UNION MEMORIAL HOSPITAL, Baltimore, Md.—Dr. Henry Chesley Decker, Richmond.

UNIVERSITY HOSPITAL, Baltimore, Md.—Dr. Benjamin Lewis Jamison, Covington.

UNITED STATES MARINE HOSPITAL, Baltimore, Md.—Drs. William Wayne Quisenberry, Wytheville; and Carl Christopher Tully, Charleston, W. Va.

THE BRONX HOSPITAL, Bronx, N. Y.—Dr. Norman Ende, Petersburg.

QUEENS GENERAL HOSPITAL, Jamaica, L. I., N. Y.—Dr. Seymour Elliott Harris, Richmond.

UNITED STATES MARINE HOSPITAL, Staten Island, N. Y.—Dr. Clem Fitch Burnette, Jr., Richmond.

BOSTON CITY HOSPITAL, Boston, Mass.—Drs. David Jeremiah Harnsberger, Richmond; and Harold Edward Wilkins, Aylett.

UNITED STATES NAVAL HOSPITAL, Chelsea, Mass.—Dr. Earl Raymond Peters, Ft. Blackmore.

BARNES HOSPITAL, St. Louis, Mo.—Dr. Fleming Bates Harper, Richmond.

METHODIST HOSPITAL, Indianapolis, Ind.—Dr. Waldo Cornell Henson, Jr., Charleston, W. Va.

UNIVERSITY HOSPITALS, Iowa City, Iowa.—Dr. John Edward Hill, Richmond.

PHILADELPHIA GENERAL HOSPITAL, Philadelphia, Pa.—Dr. Lawrence Max Howard, Jr., Lynchburg.

MEDICAL CENTER, Pittsburgh, Pa.—Dr. James Alpha Thompson, Clarksburg, W. Va.

MERCY HOSPITAL, Pittsburgh, Pa.—Dr. William Nelson Walker, Jr., Clarksburg, W. Va.

ROBERT PACKER HOSPITAL, Sayre, Pa.—Dr. William Tilden Williams, Beckley, W. Va.

TOURO INFIRMARY, New Orleans, La.—Drs. Jerome Imburg, Richmond; and Walter Stephenson Newman, Jr., Blacksburg.

SOUTHERN BAPTIST HOSPITAL, New Orleans, La.—Dr. Stuart Hinman Light, Huntington, W. Va.

CHARITY HOSPITAL OF LOUISIANA, New Orleans, La.—Dr. George Jeffries Oliver, Jr., Williamsburg.

STATE OF WISCONSIN GENERAL HOSPITAL, Madison, Wis.—Drs. George Richard Krupp, Jersey City, N. J.; and Lloyd Lein Olsen, Bessemer, Mich.

YOUNGSTOWN HOSPITAL, Youngstown, Ohio.—Drs. Louis Amadea Loria, Hepzibah, W. Va.; and

Richard Young Morgan, Beckley, W. Va.

CINCINNATI GENERAL HOSPITAL, Cincinnati, Ohio —Dr. John Wesley Todd, III, Staunton.

CLEVELAND CLINICS, Cleveland, Ohio—Dr. Fred Walls, Jr., Charleston, W. Va.

UNIVERSITY OF CHICAGO CLINICS, Chicago, Ill.—Dr. William West McClure, Richmond.

ROPER HOSPITAL, Charleston, S. C.—Dr. Joseph Walton Milam, Sutherlin.

GOOD SAMARITAN HOSPITAL, Portland, Ore.—Dr. Harold Truman Osterud, Ashland.

HENRY FORD HOSPITAL, Detroit, Mich.—Dr. James Wyatt Phillips, Portsmouth.

JOHN SEALY HOSPITAL, Galveston, Tex.—Dr. Forrest Williford Pitts, Richmond.

MONTREAL GENERAL HOSPITAL, Montreal, Canada —Dr. Wilson Albert Powell, Jr., Norfolk.

COLLIS P. AND HOWARD HUNTINGTON MEMORIAL HOSPITAL, Pasadena, Calif.—Dr. Ralph Sidney Riffenburgh, Blacksburg.

JEFFERSON AND HILLMAN HOSPITALS, Birmingham, Ala.—Dr. Joseph Alpheus Solomon, Arlington.

VIRGINIA MASON HOSPITAL, Seattle, Wash.—Dr. Ernest Randolph Trice, Richmond.

UNIVERSITY HOSPITALS, Oklahoma City, Okla.—Dr. Walter Kinstler Yates, Kenova, W. Va.

Alumni Association, Medical College of Virginia.

Dr. Waverly R. Payne, Newport News, was president and presided at the sessions of the Alumni Association on June 16 and 17. At the closing session, Dr. Harry Lee Claud, Washington, D. C., was installed as president for the coming year, and the following were named to serve with him: President-elect, Dr. Robert J. Wilkinson, Huntington, W. Va.; vice-presidents (one from each school of the College), Dr. Donald S. Daniel, Richmond, for Medicine; Dr. Fred Hale, Raleigh, N. C., for Dentistry; Mr. Roland Scott, Richmond, for Pharmacy; and Mrs. Sabra S. Sadler, Richmond, for Nursing; secretary, Dr. W. Henry Street, Richmond; assistant secretary, Mrs. Helen M. Seller, Richmond; treasurer, Dr. Harvey B. Haag, Richmond. Elected to the Board of Trustees for a term of three years are: Mr. Lloyd C. Bird, Dr. T. Dewey Davis, Dr. G. A. C. Jennings, Dr. Harvey B. Haag (all re-elected), and Mr. Claiborne Robins. All trustees are of Richmond.

Dr. Payne, President, announced that the Association had purchased the old Maury home opposite McGuire Hall to be known as the War Memorial Alumni Building, and also that he had been advised that the President of the Association will hereafter be an ex-officio member of the Board of Visitors of the College and will be given the privilege of discussions on the floor.

Scientific Exhibit.

Standard illuminated viewing boxes for exhibiting x-ray films, or preferably reductions of x-ray films have been purchased and will be available for the Roanoke meeting of the State Society. The Scientific-Exhibit Committee realizes that the difficulty of securing proper viewing equipment has prohibited the demonstration of many worthwhile exhibits, and it is with pleasure that the committee announces this added convenience.

Each box will hold the following films or mounts.

(*Outside dimensions*):

5″ x 7″ — 66
8″ x 10″ — 35
10″ x 12″ — 20

Applications for space should be addressed to Dr. W. Ambrose McGee, Chairman, 1001 West Franklin Street, Richmond 20, Virginia.

Appointments to State Board of Medical Examiners.

Governor Tuck has just announced the following appointments to the Board of Medical Examiners for the State of Virginia for the term of five years ending June 30, 1952:

Dr. Carson L. Fifer, Alexandria (Eighth Congressional District), to succeed himself;

Dr. C. L. Riley, Winchester (Seventh Congressional District), to succeed Dr. P. W. Boyd;

Dr. G. B. Setzler, Pennington Gap (Ninth Congressional District), to succeed Dr. F. H. Smith.

The Board in session in Richmond in June, elected Dr. B. F. Eckles of Galax president to succeed Dr. P. W. Boyd, and Dr. Guy W. Horsley of Richmond vice-president to succeed Dr. F. H. Smith, effective with expiration of the incumbents' Board terms on June 30. Dr. K. D. Graves of Roanoke had previously been named secretary-treasurer.

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American Medical Association.

Attendance at the centennial meeting of the Association in Atlantic City in June reached a high peak. The sessions were well attended and the exhibits—scientific and technical—attracted crowds at all times. A number of guests representing foreign countries and organizations attended and were made honorary fellows of the Association. Dr. Henry A. Christian, formerly of Lynchburg, who many years ago cast his lot with Harvard University and is now professor emeritus of medicine at Harvard, was voted by the House of Delegates as the recipient of the Distinguished Service Medal of the Association and was presented with this at the general meeting on the evening of June 10th. At this meeting also, Dr. Edward L. Bortz of Philadelphia succeeded Dr. Harrison H. Shoulders of Nashville, Tenn., as president.

Officers elected to serve with Dr. Bortz are: president-elect, Dr. R. L. Sensenich, South Bend, Ind.; vice-president, Dr. Thomas A. McGoldrick of Brooklyn; and secretary and general manager, Dr. George F. Lull (re-elected), Chicago. In view of lack of accommodations, proper convention hall, etc., the place for the 1948 meeting was changed from St. Louis to Chicago, and the 1949 from New York to Atlantic City. San Francisco was again selected for the 1950 meeting.

Dean Rudd Honored.

Mr. Wortley F. Rudd, retiring dean of the School of Pharmacy, Medical College of Virginia, was honored on the evening of June the 14th by a joint meeting of the Mortar and Pestle Club of the school and the Retail Druggists' Association, at which time he was the recipient of a certificate for a portrait by John Slavin and of an illuminated scroll.

Jefferson Medical College.

Commencement exercises of the College were held at the Academy of Music in Philadelphia, on May 23, at noon. The degree of Doctor of Medicine was conferred upon one hundred and fifty-one students who represented nineteen states.

The commencement address was delivered by Ralph Cooper Hutchison, Ph.D., D.D., LL.D., D.H.L., President of Lafayette College, his subject being "The Professional Man". Jefferson College also conferred upon him the title of Doctor of Law.

Personnel Changes, State Health Department.

Effective July 1, Accomac County has been joined to Northampton County, creating the Accomac-Northampton Health District, with headquarters at Eastville. Dr. J. Walker Jackson will serve as Health Officer.

Effective July 1, Buena Vista has been joined to the Rockbridge-Lexington Health District, creating the Buena Vista-Lexington-Rockbridge Health District, with headquarters at Lexington. Dr. R. B. Blackwell will serve as Health Officer.

Dr. E. M. Holmes, Jr., Director of the Division of Venereal Disease Control, resigned, effective June 1, 1947, to accept position with the Richmond City Health Department.

Annual Registration of Physicians in Indiana.

Effective July 1, 1947, the State of Indiana requires: "That every person who now holds, or may hereafter hold, a valid and unrevoked certificate for a license to practice the Healing Art in any form or manner, granted by the Board of Medical Registration and Examination of Indiana, shall be required to register with said Board, during the month of July and not later than the last day of August, * * * which registration shall be for the period ending June 30, 1948, and shall, annually thereafter, on or before August 31st of each year, be required to register with said Board."

The Indiana State Board of Medical Registration and Examination has requested that we publish this notice as they have Indiana licensees scattered over most of the States.

Dr. Clayton Brantly, Jr.,

Announces the opening of offices for the practice of Internal Medicine at 2 Chambers Street, Danville. He is a member of the class of '40, University of Virginia, Department of Medicine.

Major General Bliss New Surgeon General.

Major General Raymond W. Bliss is the new Surgeon General of the Army, succeeding Major General Norman T. Kirk. His four year term began June 1st. Brig. General George E. Armstrong assumes the duties of Deputy Surgeon General.

Since January 1, 1946, General Bliss has served as Deputy Surgeon General. General Kirk will retire from active duty.

General Bliss was born at Chelsea, Massachusetts, graduated from Tufts College with the degree of Doctor of Medicine, and was commissioned a first lieutenant in the Medical Reserve Corps in September, 1911. Subsequent to World War I, he served as Chief of Surgery at Sternberg General Hospital, Manila, Philippine Islands, at Fort Sam Houston and at William Beaumont General Hospital, El Paso, Texas.

He was a military observer in London from September 1940 to January 1941, and became Surgeon of the First Army and Eastern Defense Command in 1942. He was assigned as Chief of Operations in July 1943 and Assistant Surgeon General August 1944 in the Office of The Surgeon General, Washington, D. C., serving in that capacity until his appointment as Deputy Surgeon General January 1946. He was made Assistant to the Surgeon General with permanent grade of brigadier general in February 1946.

News from University of Virginia, Department of Medicine.

Dr. Edwin Burton, Professor of Ophthalmology, spoke May 19th before the New York Academy of Medicine at its 100th Anniversary Meeting on "Heredodegenerations of the Macula".

The following faculty members were on the program of the meeting of the Federation of American Societies for Experimental Biology in Chicago May 18 to 22:

Dr. William F. Kremer: "Blood Pressure Changes in Response to Electrical and Chemical Stimulation of the Cerebral Cortex."

Dr. E. L. Corey, Associate Professor of Physiology: "Tests on Explosive Decompression."

Dr. S. W. Britton, Professor of Physiology, and Dr. V. A. Pertzoff (by invitation): "Comparative Effects of Positive and Negative Accelerations."

Dr. Stephan Ludewig, Dr. Alfred Chanutin, and Dr. Erland C. Gjessing (by invitation): "Fractionation Studies of the Plasma Proteins of Control and Injured Rats."

Dr. Erland C. Gjessing (by invitation) and Dr. Alfred Chanutin, Professor of Biochemistry: "Fractionation Studies of the Serum Proteins of Control and Injured Goats."

Dr. Chalmers L. Gemmill, Professor of Pharmacology: "Effect of Theobromine Derivatives and Alloxan on Muscle Metabolism." Dr. Gemmill also read a paper on "The Physiological Effects of Exercise on Man at Altitude" at the American Medical Association Meeting in Atlantic City on June 5, 1947.

The American Gynecological Society

Met at Seigniory Club, Quebec, the middle of June. In the absence of the president, Dr. Norris Vaux, Dr. M. Pierce Rucker of Richmond presided and gave the presidential address. Dr. Emil Novak of Baltimore was elected president for the coming year, and Dr. Norman Miller of Ann Arbor and Dr. James R. Miller of Hartford were re-elected secretary and treasurer, respectively. The 1948 meeting will be held at Williamsburg, the latter part of May.

Dr. Moncure Honored.

Dr. P. St. L. Moncure of Norfolk, a former president of the Medical Society of Virginia, was the recipient of an unusual tribute on May 8th, when the staff of the Hospital of St. Vincent de Paul of his city, held a golden jubilee banquet and reception in recognition of his fifty years of service with that institution. In addition to the many expressions of esteem, he was presented with an engraved gold watch and chain.

Married.

Dr. Harry Charles Robelen, Jr., Richmond, and Mrs. Kathleen Cato Stephens, Dumfries, June 1st. He is a graduate of the Medical College of Virginia, class of 1942, and is now a resident physician at Children's Hospital, Washington, D. C.

Dr. Merritt Woodhull Foster, Jr., Williamsburg, and Miss Mary Josephine Nolde, Richmond, May 31st. He is a graduate of the Medical College of Virginia in 1944. They will make their home in Richmond.

Dr. Cecil Cooper Bell, formerly of Lynchburg and a member of the class of '45, Medical College of Virginia, and Miss Mary Ellen Banks, Grantville, Ga., June 1947. They will make their home at Kecoughtan, where Dr. Bell is on the staff of the VA Hospital.

Dr. Walter R. Chitwood,

Wytheville, class of '44, University of Virginia, Department of Medicine, who recently received his discharge from the Army, is now at the Chesapeake and Ohio Hospital, Clifton Forge.

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The Virginia Pediatric Society

Held its Spring Clinical meeting at the Medical College of Virginia on June 6th. Twenty-six members and six guests attended. The following program was presented: Impatency of the Naso-Lacrimal Duct by Dr. E. L. Kendig; Practical Aspects of the Rh Factor by Dr. J. H. Scherer; Acrodynia, Report of a Case by Dr. F. N. Mullen, Jr.; Psychiatry in Pediatrics by Dr. P. H. Drewey, Jr.; Tetanus of the Newborn, Report of a Case by Dr. John S. Weitzel; Rheumatic Fever by Dr. Louise Galvin and Dr. Carolyn McCue; Pediatric Survey Report by Dr. J. B. Stone; and Case Reports by the Pediatric Staff of the Medical College of Virginia.

Dr. Paul Hogg, Newport News, is president of this Society and Dr. Louise Galvin, Richmond, secretary.

Medical Society of the State of North Carolina.

For the second time in its history, this Society met outside the State and held its annual meeting at Virginia Beach, May 12-14, under the presidency of Dr. William M. Coppridge of Durham. Dr. Frank Sharpe, Greensboro, was installed as president, and the following officers elected: president-elect, Dr. James F. Robertson, Wilmington; and vice-presidents, Drs. V. K. Hart, Charlotte, and J. G. Raby, Tarboro. Dr. Roscoe D. McMillan, Red Springs, continues as secretary-treasurer.

Dr. Mason Romaine Takes New Post.

Dr. Romaine has resigned as public health director of Petersburg and, effective July 1st accepted the position as director of the division of cancer control of the State Health Department. He was the first full-time public health officer in Petersburg, being appointed in 1941, after having been associated with the department since 1922. Dr. Romaine's office will be in Richmond but he will maintain his home in Petersburg.

Dr. George N. Thrift,

Richmond, has been named a diplomate of the American Board of Otolaryngology.

Dr. Henkel M. Price,

After completing special work at the North Carolina Baptist Hospital at Winston-Salem, has returned to Martinsville, where he will limit his practice to the field of radiology.

Dr. Julian Q. Early,

Who has been practicing at Dante since his release from the Navy, has entered upon a fellowship in cardiology at the University of Virginia under Dr. J. Edwin Wood. Dr. Early graduated from the University in the class of December 1943.

Dr. Percy G. Hamlin,

For many years a member of the Medical Society of Virginia and a Lieutenant Colonel in the Medical Corps, AUS, until January 1946, was one of the associates of the American College of Physicians elected to Fellowship in the College at its recent meeting in Chicago. Dr. Hamlin is now making his home and practicing in Santa Barbara, California.

President of Harvard Club.

Dr. Sidney S. Negus of Richmond was elected president of the Harvard Club of Virginia at its annual dinner meeting on May 28th. Dr. Lee E. Sutton, also of Richmond, was elected a member of the executive committee.

Dr. William T. Pugh,

Lynchburg, has been reappointed by Governor Tuck as a member of the State Commission of Game and Inland Fisheries for a new term of six years, beginning July 1.

Postgraduate Course in Cardiology.

There will be a two-week course in Cardiology given at the Medical College of Virginia, September 8-20, 1947. The tentative program is given below. Tuition for the course is $50.00. Inquiries should be addressed to The Department of Continuation Education, Box 94, Medical College of Virginia, Richmond 19, Virginia.

MONDAY	
9:00-10:00	Registration and Introductory Remarks
10:00-11:00	Electrocardiogram Quiz
11:00-12:00	Physiologic basis of E. C. G.
12:00- 1:00	Anatomy of heart
2:00- 4:00	Demonstration of cases
4:00- 5:00	Physiology of the circulation
TUESDAY	
9:00-10:00	Pathological Physiology and Congestive Failure
10:00-12:00	Electrocardiography
12:00- 1:00	Special Procedures and Tests
2:00- 4:00	Demonstration of cases
4:00- 5:00	Treatment of Congestive Failure
WEDNESDAY	
9:00-10:00	Treatment of Congestive Failure
10:00-12:00	Electrocardiography
12:00- 1:00	Pathology Demonstration
2:00- 4:00	Demonstration of cases

4:00- 5:00	Evaluation of signs and symptoms
THURSDAY	
9:00-10:00	Cardiac arrhythmias
10:00-12:00	Electrocardiography
12:00- 1:00	Cardiac x-rays
2:00- 4:00	Demonstration of cases
4:00- 5:00	Congenital Heart Diseases
FRIDAY	
9:00-10:00	Rheumatic Fever and Rheumatic Heart Disease
10:00-12:00	Electrocardiography
12:00- 1:00	Pathology Demonstration
2:00- 4:00	Demonstration of cases
4:00- 5:00	Hypertension
SATURDAY	
9:00-10:00	Coronary
10:00-12:00	Electrocardiography
MONDAY	
9:00-10:00	Bacterial Endocarditis
10:00-12:00	Electrocardiography
12:00- 1:00	Pathology Demonstration
2:00- 4:00	Demonstration of cases
4:00- 5:00	Pulmonary Heart Disease
TUESDAY	
9:00-10:00	Diseases of the Pericardium
10:00-12:00	Electrocardiography
12:00 -1:00	Cardiac x-rays
2:00- 4:00	Demonstration of cases
4:00- 5:00	Functional Cardiovascular Diseases
WEDNESDAY	
9:00-10:00	Miscellaneous Heart Diseases
10:00-12:00	Electrocardiography
12:00- 1:00	Cardiac Fluoroscopy
2:00- 4:00	Demonstration of cases
4:00- 5:00	The Heart in Pregnancy and Operations
THURSDAY	
9:00-10:00	Surgery of the heart and vessels
10:00-12:00	Electrocardiography
12:00- 1:00	Cardiac Fluoroscopy
2:00- 4:00	Demonstration of cases
4:00- 5:00	Vascular Diseases
FRIDAY	
9:00-10:00	Vascular Diseases
10:00-12:00	Electrocardiography
12:00- 1:00	
2:00- 4:00	Demonstration of cases
4:00- 5:00	Vascular Diseases
SATURDAY	
9:00-12:00	Resume and Question Period

Physicians Medical Laboratory.

Since the approved list of laboratories has been published for the year, Dr. William J. Frohbose, Consultant, Division of Venereal Disease Control, announces that Dr. V. J. Dardinski's laboratory, known as "Physicians Medical Laboratory", has been granted temporary approval, pending the new evaluation study in November 1947. This laboratory was opened June 1, 1947 and is located at 1228 North Irving Street, Arlington, Virginia.

For Sale—

1 Autoclave
1 Basin Sterilizer
1 Operating Table
1 X-Ray Machine

All suitable for a small hospital or clinic. Address Lebanon General Hospital, Lebanon, Va. (*Adv.*)

Wanted—

A resident or associate in Group practice. Write Dr. A. M. Showalter, Christiansburg, Va. (*Adv.*)

Wanted—

Resident physician, Grade A School. Room, board, uniforms, laundry, and $100.00 monthly. Address Miss N. J. Curtis, Superintendent, Sheltering Arms Hospital, 1008 East Clay Street, Richmond 19, Va. (*Adv.*)

Wanted—

Resident physician for small hospital, also laboratory and X-ray technician. Apply Clinchfield Hospital Medical Department, Dante, Va. (*Adv.*)

Wanted—

Young doctor for junior partner; country practice; good salary plus commission. Address "Doctor" care this journal, 1200 East Clay Street, Richmond 19. (*Adv.*)

For Sale—

Physician's home in rural and mountainous area, in community of 2,800. Practice includes industrial, agricultural, and tourist and resort groups. Adequate hospital facility in town, and easy access to larger centers. Well equipped offices, centrally located, available for rent, with or without purchase of equipment. Will introduce purchaser of home to practice. Reply "Doctor's Home", care this journal, 1200 East Clay Street, Richmond 19. (*Adv.*)

For Sale—

One (1) operating room table with complete equipment of stainless steel, good as new;

One (1) nitrous oxide oxygen gas outfit, put up by McKesson Appliance Company, model 620.

Address New Altamont Hospital, Christiansburg, Va. (*Adv.*)

OBITUARIES

Dr. Alfred D. Henkel,

One of the oldest physicians in the State, died at his home in Winchester on May 27th, after an illness of six months. He was eighty-six years of age and a graduate in medicine from the University of Pennsylvania in 1887. He had been a member of the Medical Society of Virginia since 1905 and was for many years a member of the Winchester School Board. He is survived by two children and several sisters.

Dr. Jesse Hill Crouch,

Director of public health for Henrico County, died June 13 after a short illness. He was a native of Richmond and sixty years of age. He graduated from the Medical College of Virginia in 1911, and he practiced in Richmond for a short time before entering public health work. Soon thereafter he took his degree of D.P.H. at Johns Hopkins. After service in several other locations, he returned to Virginia in 1939 and accepted the position as director of public health for Henrico County which he held to the time of his death. He held membership in several medical organizations and was prominent in Masonic circles. His wife and two brothers survive him.

Dr. Oscar Hunter McClung,

Lexington, died of coronary thrombosis on February 2nd. He was sixty-seven years of age and a graduate from the University of Virginia, Department of Medicine, in 1902. He was a member of the staff of the Jackson Memorial Hospital in Lexington, and had been a member of the Medical Society of Virginia since 1903.

Resolutions on Dr. Burton.

The Alleghany-Bath County Medical Society, at a recent meeting, drew up the following resolutions on the death of Dr. William Preston Burton:

On December 17, 1946, at its regular meeting the Alleghany-Bath County Medical Society issued a unanimous expression of deep regret at the untimely death of its former member, Dr. W. P. Burton, of Covington, Virginia.

Dr. Burton's death was an acute and irreparable loss to his family, to the medical profession, to his patients, and to the welfare of his immediate community.

It is the desire of the Society that a copy of this expression of sympathy be conveyed to his family, and that a copy be sent to the Medical Society of Virginia for publication in the VIRGINIA MEDICAL MONTHLY.

R. P. HAWKINS, JR.
H. G. HUDNALL
G. A. TORRENCE
Committee.

Dr. Harry Burgwyn Baker,

Richmond, practicing homeopathic physician for more than forty-five years, died June 14th. He was seventy-eight years of age and a graduate of the former University College of Medicine, Richmond, in 1900.

Sir Almroth Edward Wright,

One of Great Britain's famous and most highly honored physicians, died at his home at Farnham, Buckinghamshire, April 30, aged 85.

He was educated in liberal arts in Dublin University and completed his education at the University of Leipsig, Strasburg and Marburg. His professional life was spent as principal of the Institute of Pathology in St. Mary's Hospital, London, where he made his great contributions to medical science. As early as 1896 he developed a method of preparing the serum for anti-typhoid inoculation. His method gained international acceptance after he had arranged for its use for British troops in 1914-1919 when he served as consulting physician to the British Expeditionary Force in France.

As professor of pathology in the Royal Army's medical school at Netley in the years just previous to the Boer War, he discovered that typhoid bacilli which had been killed by heating could be introduced into the patient's blood, rendering him immune or able to withstand a severe case of typhoid. For this work he was knighted in 1906 and in World War I he was made a Companion of the Bath and a Knight of the British Empire.

Sir Almroth was honored by many foreign societies.

GUY HINSDALE, M.D.,
Charlottesville, Va.